Is Technology a Threat to Education?

The Contribution of George Parkin Grant

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Abstract

The writings of George Parkin Grant (1918-1988), a Canadian political philosopher, were analyzed according to his view of the relationship between technology and education. Grant's life was summarized to provide a context for understanding his ideas. His definition of technology -- the co-penetration of knowing and making -- was conceptually analyzed and placed within a reading of his work that ascertained a progressive development of this definition over three distinct phases in his academic career. Grant's implicit vision of education, grounded in Christian and Platonic epistemological assumptions, was explicated and unified around his idea of the interdependence of knowing and loving. From a comparison with John Dewey's concepts of technology and education, Grant and Dewey were found to be in substantial agreement concerning the nature of modern technology, but in profound disagreement over the meaning of an educative experience. Grant's qualified, affirmative response to the question of this thesis -- Is technology a threat to education? -- was found insightful in helping to clarify some foundational issues in educational research. As well, it provided another perspective within which one can begin to assess the general impact of technology on education.

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CHAPTER ONE: IS TECHNOLOGY A THREAT TO EDUCATION?

Are schools repositories of "technophobes" -- people who cannot do so they teach? How many teachers are academic cast-offs who could not cut the rigour of a scientific education and so were denied a career in engineering or medicine? Are they losers who, unable to understand science and technology, took refuge on the sidelines of academia -- the increasingly irrelevant arts and humanities -- and ended up in teaching careers because their B.A.s entitled them prestige in little else? If this is so, it is no wonder that North American students are rated so low in international math and science competitions. According to this view, the educational system has been, and continues to be, an obstacle to the development of "high tech." If our country is to remain economically competitive, our schools need to be staffed by those excited by, and competent in, those subjects which are the most important in our age -- math, science and computers.

On the other hand, is there any rational basis to the uneasiness of those who feel that technology is a threat to education? Are there good teachers who resist technological innovations because they have some insight on how technology adversely affects education? Notwithstanding Neil Postman's (1992) advocacy of teaching as a conserving activity in a culture that has surrendered to technology, it is difficult to articulate a position urging caution when introducing new

technologies such as computers into the classroom without sounding like a shrill technophobe. This thesis is an attempt to argue a cautionary position about technology based on the writings of George Parkin Grant, a Canadian educator who spent much time thinking about technology. It is a conceptual study of the terms technology and education employing Grant's use of those words as a focal point for analysis. The thesis further attempts to clarify the nature of the relationship between technology and education with the aim of analyzing the argument that technology is a threat to education. In the remainder of this introductory chapter, a suggestion by Zodhiates (1988) will be analyzed for the purpose of showing the problematic nature of the relationship between technology and education and demonstrating that a conceptual analysis of those two terms is necessary.

Two Definitions of Technology

That a conceptual analysis of the word "technology" is needed can be illustrated by the fact that educators use it to draw opposite conclusions. What definition was employed by Cuban (1986) and Nickerson (1988) who claimed that technology has had little effect in changing educational practice in the majority of North American schools? Cuban defined technology in the classroom as "any device available to teachers for use in instructing students in a more

efficient and stimulating manner than the sole use of the teacher's voice" (Cuban, 1986, p. 4). With technology defined as machinery, Cuban has shown that for all the grandiose predictions for educational change surrounding the introduction of film, radio and television in schools since 1920, most instruction still consists in teacher talk, blackboard and chalk, and textbook-based curricula.

On the other hand, a sociological definition of technology -- "the totality of methods rationally arrived at and having absolute efficiency" (Ellul, 1970, p. xxv) -- leads to the opposite conclusion: Modern schools are profoundly shaped by technology. Spring's (1972) documentation of the historical development of American public schooling as the socializing arm of the corporate state, supported the argument that modern compulsory mass education is a custodial filtering system designed to program youngsters to fit into a technological society. Indeed, within this sense of technology, schools can be seen as being very responsive to the demands of efficiency (Callahan, 1962). For example, the "new" math curriculum was imposed on all North American schools in the 1960s in order to better prepare and select students for "high tech" as the United States scrambled to keep pace with the Soviet Union in the space race.

Whatever definition one uses, the phenomenal impact of computers challenges educators to face up to Feurzeig's

(1988) prediction that "technology will come to have a deep synergetic relationship with education -- and with work and life. That is its destiny and ours" (p. 113). Teachers can no longer close their doors to change, for young learners will not be denied access to computers. State and society will no longer tolerate any footdragging.

Even in Christian schools where teachers are encouraged to be conservative transmitters of an old tradition, it is expected that students learn the skills that will help them keep pace in a changing world. For example, my colleagues[1] approved a plan to teach computer skills to our elementary pupils. The proposal sketched a classroom laboratory with a computer for each student connected on a network system.

On the whole, the plan seemed acceptable except for one statement in the rationale that described computers as a gift from God. A lively discussion ensued at the staff meeting which sparked a week-long debate between one colleague and me via the staff room white board. At the next meeting the offending phrase was deleted from the rationale and the staff unanimously adopted the plan.

It is interesting to note that even though the optimistic view of the computer as a divine blessing did not gain total acceptance, no one on staff argued against the practical import of the plan: to systematically incorporate

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[1] At the time of writing I teach in an independently-financed, parental Christian day school.

computers in our school's curricula.

Technophobia

Are there any reasonable grounds to fear technological changes in schools? In the preface to a book which summarized a "think tank" conference on technology in education, Zodhiates (1988) prescribed the following which might be interpreted as a palliative for those who suffer from "technophobia":

> Only after we have a reasonably clear idea of what it means (or should mean) to be educated and of what we would like an educational system to accomplish, should we turn to the question of what role or roles technology should play in the educational process. (p. ix)

Zodhiates was asking us to consider carefully what education is so that we can then decide the proper place for technology. The assignment seems straightforward. First, let us thoughtfully formulate our goals for education. Second, let us decide how and what technology can most effectively help teachers and learners attain these goals.

From Grant's perspective, there are several problems with this assignment. Can we achieve a meaningful consensus on the goals of education or even an agreement on what education is? Do we even need diverse groups such as classicists, technophiles, critical theorists, humanists,

Christians, Muslims, Jews, Hindus, Buddhists or those of any other faith to come to an agreement on educational goals before deciding about the role of technology? If there can be a pluralism of educational foundations but relative agreement on the place of technology in each of these various school systems[2], does it not follow that Zodhiates' assignment is of little practical value? If this line of thinking is extended further, one begins to suspect that the development of technology is indifferent to educational goals. In fact, it leads one to turn Zodhiates' suggestion on its head: First, technology lays down the essential parameters of modern existence. Second, we must continually revise educational goals to adjust our schools, our students and ourselves to those changing parameters.

To view Zodhiates' clarion call from another angle: From it we can infer that he regards technology as a neutral tool that we decide to use or not to use according to purposes outside of itself. A careful reading of Grant will prompt the question: But is not the way of thinking that is central to the dynamic of technology the same as the reasoning we employ to decide for what purposes we shall use the technology? In other words, how unencumbered are we in our choosing when we consider the roles technology will assume in schools? And what options do we now take for

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[2] Aside from a few groups such as the Old Order Mennonites, it would be hard to imagine any school opposing technology in education on principle.

granted that technology may destroy in the future if we allow it to develop along a certain path?

The dynamic logic of technology seems immune to this type of questioning. For example, one has only to consider the present ecological crises to recall that pollution-free air and water as well as an ozone layer thick enough to protect us from harmful radiation were once freely enjoyed in North America. Our response to these crises illustrates the deeply held faith we have in technology. We design more effective pollution control devices on cars but do not seriously question this mode of transportation which has radically altered the landscape and cityscapes. How long will it be before most of us, not just those with respiratory problems, have to carry oxygen tanks? Will all of us have to buy our drinking water in the future or install filtration or distillation systems in our homes?

Even though most of us are aware of how we look to newer technologies to solve the problems created by older ones, it is considered heresy to question technology itself. For example, a synthetic fluorocarbon has been invented to replace the older refrigerants that have caused so much damage to the high-altitude ozone. Yet, just as with the older "freon," we cannot foresee whether or not the introduction of this new chemical in our environment will cause a different or more serious ecological effect. The disaster of DDT has done little to shake our hope in the

promise of technology.

This thesis is meant to take Zodhiates' suggestion seriously. It attempts to analyze from a philosophical[3] or theoretical perspective the relationship between education and technology. Grant's writings are examined as the basis for this analysis in order to understand the grounds for exercising caution with respect to technological innovation in education.

Chapter two summarizes the life and work of George Parkin Grant. Chapter three is an explanation of Grant's definition of technology. Chapter four is an exposition of Grant's views on education. John Dewey's position on technology and education and their relationship is used in chapter five to critique Grant's ideas. In the final chapter, the validity of the thesis is assessed in the context of implications for educational research and practice.

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[3] I accept Grant's definition of philosophy as being "open to the whole" (Grant, 1989, p. 165). This sounds a bit pompous and pretentious to those trained in analytical philosophy. Nevertheless, it is in the spirit of that definition that I conduct the conceptual analysis.

CHAPTER TWO: GEORGE PARKIN GRANT

Preliminaries

George Parkin Grant was born in Toronto on November 13, 1918. By the time he died on September 27, 1988 in Halifax, Grant was recognized as one of Canada's foremost political philosophers. The purpose of this chapter is to acquaint the reader with the life and work of George Grant to provide a context for understanding his ideas on technology and education. The main source for reviewing his life was Christian's (1993) comprehensive biography. My own reading of Grant's work was the basis for summarizing his ideas. In addition, I have incorporated some recollections of Grant as a teacher based on my experience auditing two courses with him in 1978-79 at McMaster University in Hamilton, Ontario.

Preliminary to this review of Grant's life and work, it might be helpful to describe how I developed an interest in Grant so that the reader is aware of my bias. During a second-year political science course taken in 1971-72, a requirement was to read Grant's Lament for a Nation (1970). It was my first exposure to Grant and I became immediately enthusiastic, for here was a respected intellectual publicly expressing admiration for former Canadian Prime Minister J.G. Diefenbaker when it was not popular to do so. My father had voted for Diefenbaker time and again in the 1960s. Perhaps that partially explains my initial interest in Grant. In the years that followed, I read everything I

could by him outside of any course requirements. Soon I began to suspect that we shared a similar Christian faith.

It was not until my year of teacher training in 1978-79 that I was afforded an opportunity to know him in person since the Ontario Teacher Education College was situated on the border of the McMaster campus. My pre-service year involved no formal classes: It was a flexible, individualized program where study groups met at their own convenience. This made it possible to listen to Grant, from whom I have never taken a course for credit.

George Parkin Grant: Life and Work

George Grant was born into a distinguished Canadian family with a tradition of service in the field of education. George Munro Grant, his paternal grandfather, was instrumental in transforming a small Presbyterian college into Queen's University at Kingston during his tenure there as Principal from 1877 until his death in 1902. His maternal grandfather, Sir George Parkin, had been a headmaster at two schools: the first in Fredericton, New Brunswick, the other in Toronto at Ontario's premier private school for boys -- Upper Canada College. Later, in recognition for his diplomatic services to the British Empire, Parkin received the honour of establishing and administering the Rhodes scholarships from Oxford, England. George Grant's father, William Lawson Grant, was the first

Canadian to win a first in Greats (Classics) at Oxford. After a brief stint as a history professor at Queen's University, W.L. Grant, like his father-in-law before him, became headmaster of Upper Canada College. He administered that school from 1918 until his death in 1935. Although George Grant later complained that "his whole life was a convalescence from growing up in a school run by his father" (Christian, 1993, p. 7), his biographer concludes: "Except for the last year as a boarder at Upper Canada after his father died, there is little evidence of the unhappiness he claims to have endured as a child" (Christian, 1993, p. 20).

George Grant grew up in Toronto during the 1920s and 1930s as the youngest child and only son of William and Maude Grant. He had three older sisters. His father's salary as Headmaster at Upper Canada College was considerable enough for the family to afford three servants. Largely through Maude's social skills, the Grants developed connections with the rich and powerful in Toronto, many of whom sent their sons to be educated at Upper Canada College. George Grant's uncle, Vincent Massey, was Canadian High Commissioner in England during the Second World War and later was appointed as the first Canadian-born Governor-General. Grant had the benefit of connections like these throughout his life and was often able to draw upon them.

Powerful personalities dominated the Grant-Parkin clan. It was by "force of personality and hard work" (Christian,

1993, p. 22) that George Munro Grant had built Queen's. His father, William, believed that the aim of Upper Canada College was "the formation of character, and hence he was less interested in hiring scholars than he was in recruiting men with powerful personalities" (Christian, 1993, p. 22). His mother, Maude, who graduated from McGill University in 1903, so impressed Eugene Forsey, a notable Canadian senator and constitutional expert, that he remarked: "She could have run the British Empire at the height of its power single-handed"(Christian, 1993, p. 12). One of the themes of Christian's biography is that George Grant's mother was a dominant figure in his life from whom he was always looking for signs of affection and acceptance. "Only half-jokingly [Grant] later said that [his mother] expected him to become prime minister and never forgave him for failing" (Christian, 1993, p.15).

After completing his elementary and secondary education at Upper Canada College, Grant attended Queen's University where he attained a B.A. in History. He won a Rhodes Scholarship to study law at Oxford University, England, in 1939. As a result of rubbing shoulders with professors and students who had been trained in the older classical tradition in England, he became conscious of his own North American pragmatism.

Grant had to postpone his studies when the war began.

As a teenager in Upper Canada College, he had read a book[1] which convinced him to be a pacifist. This position was further strengthened when he became aware of his father's devastating experience as a soldier in World War I (Christian, 1993, pp. 5,6). Because of his pacifism, Grant did not join the armed forces. Instead, he trained to serve as an Air Raid Precautions Warden for the Bermondsey district of southeast London. It was his job "to make sure that the blackout was observed and, once a raid was in progress, to summon the appropriate emergency services, rescue those trapped in the rubble, provide first aid, and most dangerous of all, investigate unexploded bombs" (Christian, 1993, p. 70).

Grant knew firsthand the horror of modern warfare. Later on, in the 1960s when he opposed the Vietnam War, he had no trouble sympathizing with the North Vietnamese who endured the saturation bombing of American B-52s. The experience of the London "Blitz" led him to begin questioning the liberal ideal of progress because such "progress" seemed only to have increased the incredible destructive power that humans could unleash on each other. Grant wrote to his mother in June 1940 that one bomb could instantly

destroy even the most intricate, delicately balanced

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[1] Nichols, B. (1933). Cry havoc. London: Jonathan Cape. Cited in Christian (1993, p. 28).

> human personality. Not only is the beautiful mechanism of the body torn, ripped, masticated by the tiger-like violence of the high explosive, but the existence of the person knitted with his thoughts, passions, ambitions, inhibitions is destroyed. (Grant cited by Christian, 1993, p. 103)

When the German bombing of Britain subsided in 1941, Grant was no longer needed as an air raid warden. Feeling he should do something to help in the war, in addition to being subjected to much pressure from family and friends to join the armed forces, Grant proceeded to apply to serve in the least militant branch of the navy -- the merchant marine. Grant's pacifism seemed to be compromised. However, in effect, his pacifism was not tested because the merchant marine rejected his application when his medical examination revealed a tubercular lesion.

Grant panicked at the news. He tried to board another ship but was not allowed on. Without telling anyone, Grant took a job working as a farm labourer thirty miles from Oxford. It was here, sometime in mid-December 1941, that Grant's pivotal conversion to Christianity took place. "For the rest of his life George Grant attempted to think through the meaning of this experience" (Christian, 1993, p. 86).

I heard Grant relate this experience in class one autumn afternoon in 1978. He said that he walked through a gate early one morning and suddenly realized that <u>he was not</u>

his own. This was the only time I had ever heard anyone describe a conversion experience using words that echo the first question and answer of the Heidelberg Catechism.[2]

Grant gave an informal talk on abortion in 1975 at a gathering of students and professors which I attended at McMaster. Here he used this same phrase in a different context. It illustrates how foundational his faith was to his thinking. After Grant had expounded his objections to the pro-choice abortion position, an angry woman proclaimed, "This is my body to do with as I choose." After a slight pause, Grant responded, "I can only say that I believe that I am not my own."

In early 1942 Grant returned to Canada to rest and recover from exhaustion. Many thought he was on the brink of a nervous breakdown. He stayed with his mother in Toronto and spent most of the year in bed. One friend who had known him before the war concluded that Grant's "emotional devastation in the war arose from the fact that he was entirely on his own, and not insulated by the discipline and order of the armed forces" (Christian, 1993, p. 90).

After he had regained his strength and a doctor had

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[2] Q. What is your only comfort in life and death? A. That I am not my own, but belong - body and soul, in life and in death to my faithful Saviour Jesus Christ. (Psalter Hymnal, 1987, p. 861). This seemed ironic to me because this catechism is a doctrinal standard of Calvinist Christianity, a tradition that Grant often criticized.

pronounced his tubercular lesion inactive, Grant took a job with the Canadian Association of Adult Education. Part of his task was to help prepare weekly national radio broadcasts entitled Citizens' Forum -- a program designed to encourage Canadians to think about and discuss political issues in local groups. Grant hoped these programs and discussion groups would lead to democratic action:

> Discussion is, in fact, intelligent deliberation as to what is necessary to be done. Action is the putting of decisions into effect. Discussion, like most thought, is sterile if it doesn't lead forward to practical conclusions. Action, to be constructive, must be well thought out. (Grant, 1944, p. 26)

In 1944 Grant involved himself in two local activist groups-- two of the relatively few that were initiated by Citizens' Forum. The Civil Liberties Association of Toronto launched a campaign to restore the property and civil rights of Japanese Canadians. The Citizens' Housing Association was founded to promote publicly financed low-rental housing (Christian, 1993, p. 101).

In his discussions with fellow workers in adult education and activist groups, he felt more and more uneasy with their socialist or liberal stance. He was beginning to critique modernity and he believed that liberals and social

democrats[3] shared the goal of creating well-adjusted citizens for a democratic society.[4] For him this was a "travesty of education" (Christian, 1993, p. 104).

At the same time, his conversations with fellow activist Judith Robinson deeply influenced how he viewed Canada's relationship with the United States. Twenty years later these views found a mature expression in his most popular book, Lament for a Nation. During the war and in the 1950s, a journalist with the Globe and Mail and, later, the Toronto Telegram, Judith Robinson "consistently denounced ... the Liberal hegemony in Canadian politics and the policy of integrating Canada more closely to the United States" (Christian, 1993, p. 107).

Immediately after the war was over, Grant returned to Oxford to continue his graduate work with one major change: He switched from law to theology. While in England, Grant paid a price for the pacifist stance that he had taken five years earlier. He was initially offered the position of the

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[3] Later, Grant made it clear that a true conservative stance has almost disappeared in North America and that those who are so labelled share the same goal as liberals or social democrats except that they do not want to reach the goal as quickly as their more left-leaning compatriots (Grant, 1970, pp. 72-75).

[4] Obviously, this does not mean that Grant favoured the creation of maladjusted citizens for an autocratic society. As is shown below in chapter four, Grant accused the progressive educators of lowering the "sights" for educational excellence to "mere" socialization. Socialization was necessary for a well-ordered society but, in Grant's view, education transcended it.

warden of Hart House, University of Toronto, but when the Board of Governors considered his candidacy, they felt him an unsuitable choice to relate to returning war veterans who would be entering university. However, soon after that fell through, Grant was encouraged to apply for the philosophy position at Dalhousie University, Halifax.

His formal qualifications seemed inadequate for the Dalhousie post. Grant had taken only one philosophy course as an undergraduate at Queen's, for which he had received a "B." In addition, his doctoral work was not complete. However, one anonymous character reference[5] recommended him on the basis of his potential teaching ability and perhaps this persuaded Dalhousie to offer Grant the job:

> On the grounds of scholarship I do not think he deserves consideration. As a teacher, however, he would probably be extremely good .... He has also a most unusual ability in dealing with people and in appreciating points of view which are not his own. (Christian, 1993, p. 129)

Before leaving England to take up his first academic position in Canada, George Grant married Sheila Allen, an

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[5] Christian speculates that the reference might have been Nathaniel Micklen, an Oxford professor of theology who had been a friend of the Grant family when he taught in Kingston from 1927 to 1931 (Christian, 1993, pp. 113, 129). It is difficult not to presume that Grant's family "pull" helped him in attaining the Rhodes Scholarship, the post at Dalhousie and the invitation to write an article for a Royal Commission in 1950 (Armour, 1994, pp. 36-37).

Oxford graduate in English Literature. She was his intellectual equal. Christian (1993) provided the following assessment of Sheila Grant:

> She kept her husband more or less sane for over forty years. She valued his work and actively worked with him to make it as good as it was. Without her he undoubtedly would have been a profound thinker, but his published work would not have been as good. (p. xi)

Grant taught philosophy at Dalhousie University from 1947 until 1960. At first he was the only teacher in the philosophy department and lacked formal training in this discipline, so Grant combined a lot of reading with guidance from someone he befriended at Oxford -- James Doull, a classics professor at Dalhousie. Doull was a Hegelian who helped Grant read through some works of philosophy, particularly the thought of Kant and Plato. Grant felt a great debt towards Doull:

> I will never forget once, walking down the street in Halifax, he showed me what the image of the sun in Plato's Republic meant. Everything that I had been trying to think came together .... He was the person who made me really look at Western philosophy. (Schmidt, 1978, p. 64)

From then on, Plato became a central influence in Grant's thought as he turned away from the progressivist assumptions of modernity and looked with increasing favour at ancient

Greek philosophy.

Grant was an excellent teacher. Sitting in his class was like going on an adventure. I felt that the most critical questions were being considered and I did not want to miss one point in the ensuing discussion. Standing in front of the class, this imposing large figure would look out at us with a fixed gaze and begin his lecture with a colourful anecdote before considering a question that had not been resolved at the last class. He treated students with respect and humility. Once he said, "For those of you who go into teaching, you must never forget that when you walk in front of a classroom of students, there is always at least one person there who is more intelligent than you are."[6]

George Grant attributed his success in teaching to his thorough preparation, development of clear examples and stories to illustrate ideas, and "great emotional concentration at each hour of lecturing" (Christian, 1993, p. 134). He took his students' questions seriously, and, if he did not have an immediate answer, took the time to read and think about it after class before responding to it at the following session.

In 1949-50, Grant took a leave of absence from Dalhousie to complete his D. Phil. in theology at Oxford.

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[6] This is a paraphrase based on my recollections of 1978-79.

On returning to Canada, he was asked to write a paper on the study of philosophy in English Canada for the Royal Commission on National Development in the Arts, Letters and Sciences headed by his uncle, Vincent Massey. Since he was a junior professor whose formal qualifications in academic philosophy were less than comprehensive, his peers in the discipline, especially Fulton Anderson, chairman of the philosophy department at the University of Toronto, were understandably annoyed that Grant had been selected for this task. When the report was published in 1951, Anderson was enraged by Grant's attack on university departments of philosophy which Grant, in effect, accused of turning their backs on the important questions to become analytical errand boys for the natural sciences. What really angered Anderson and most of the analytical [7] philosophers was Grant's unabashed statement that religious faith was central to the study of philosophy: "The study of philosophy is the analysis of the traditions of our society and the judgement of those traditions against our varying intuitions of the Perfection of God" (Grant, 1951, p. 119).

Anderson held a conference on Canadian philosophy in late 1951 to demolish Grant's paper. By not defining what

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[7] At the risk of oversimplification, the difference between Grant's approach to philosophy and those who are loosely termed "analytical" can be described as follows: Modern analytical philosophy concerns itself with analysis -- the separation of the whole into its component parts. Grant's approach was based on the ancient view -- gazing at the whole.

he meant by faith, Anderson argued, Grant's recommendations would lead to the destruction, not the salvation, of philosophy. Philosophy, he concluded, would be a means to confusion if it tried to accommodate itself to "the conflicting doctrinal persuasions which find adherents in religious denominations and theological faculties" (Anderson, 1952, p. 4). Grant's reputation among academic philosophers in English Canada was sorely damaged and as a result he learned not to speak or write directly about his faith again: "I knew from that you had to write fairly indirectly if you wanted to live, particularly in the academic community" (Christian, 1993, p. 156).

Grant's response to Anderson was certainly indirect. He published articles (Grant, 1952; 1954a) that attacked certain positions held by two leading analytical philosophers: Karl Popper and Bertrand Russell. Grant's only reference to Anderson was in an article he wrote for Encyclopedia Canadiana (Grant, 1958). In that article there is no evidence of the 1951 controversy. Grant complimented Anderson's department of philosophy at the University of Toronto for developing "a tradition of sound scholarship [that] has prevented Canadian philosophy from being dominated by the linguistic emphasis that characterizes contemporary English and American thought" (Grant, 1958, p. 184). In fact, Grant cited the Anderson (1952) symposium as a major reference for that article. Perhaps this was

Grant's way of "doing academic penance" and acknowledging that his 1951 description of the state of Canadian philosophy suffered somewhat from historical inaccuracies.

During the 1950s, George Grant became acquainted with the writings of Simone Weil, a French intellectual who had died during the war at the age of thirty-three. He was overwhelmed by the power and clarity of her thought. Weil had been a Christian Platonist, and she became Grant's most important intellectual influence. Her definition of faith as "the experience that the intellect is illuminated by love"[8] was a statement that he reflected on for the rest of his life in his attempts to understand the relationship between reason and faith.

In 1958, the CBC invited Grant to prepare a series of radio programs "to inaugurate a new experiment in educational public broadcasting, a sort of university of the air" (Christian, 1993, p. 187). In these lectures, which were published in 1959[9] under the title Philosophy in the Mass Age, Grant explained the importance and difficulty of doing philosophy today. He mainly argued that there was something essential missing in modernity that we need in order to live well.

At this point in his thought Grant was still publicly

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[8] The meaning of this definition is explicated in chapter four.

[9] The citations that I use from this work are taken from the second edition published in 1966.

enthusiastic about the modern notion of "subjective freedom" which he defined as ...

> freedom of the spirit: man [sic] is more than simply an object in the world, he [sic] is a subject .... What we really are can never be an object for ourselves. As far as action is concerned, this subjectivity implies the power to stand above ourselves and judge what we are and what we should be. (Grant, 1966a, pp. 69, 70)

His analysis of Marxism, which was considered sympathetic given the climate of anti-communism of that decade, and his musings on existentialism combined with his opposition to pragmatism and progressive education left the listeners with a question to which Grant had no answer: Was it possible to combine the modern good of subjective freedom with the ancient idea of a transcendent order independent of human construction that would provide a fitting context for that freedom?[10] These radio broadcasts brought Grant a measure of recognition.

Throughout the fifties, Grant was looking to teach in Ontario in order to be closer to "where the action was" and also to be near his mother in Toronto. In 1960, he accepted a position to teach philosophy at York University, a brand-

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[10] "Freedom so defined is not, then, simply the ability to get what we want when we want it, but also the ability to reflect about what we should want. To use the traditional language of moral philosophy, it also implies that we cannot find our completeness in any finite object of desire" (Grant, 1966a, p. 70).

new institution that in its early years was a "satellite" of the University of Toronto. This meant that the curricula, exams and textbooks were set by University of Toronto's philosophy department where Grant's nemesis, Fulton Anderson, still taught. When Grant realized what little freedom he had to structure his own courses and was forced to use a textbook that, he felt, misrepresented Christianity and was opposed to classical philosophy, he resigned.

With a wife and six children to support, George Grant was unemployed. However, he was soon able to procure a position as a consultant to the Institute for Philosophical Research based in San Francisco. Grant was allowed to work out of Toronto where his major task for the year was to read over fifty recently published books on philosophy and religion and write a report summarizing them for Encyclopedia Britannica. "It might well be said that with this intensive immersion in contemporary philosophical and religious thought George effectively completed his formal training as a philosopher begun so casually at Queen's twenty years before" (Christian, 1993, p. 206).

In 1961, George Grant accepted a position at McMaster University in Hamilton, Ontario, with the newly-formed Department of Religion. He wanted to help shape a department that would not only be a place of scholarship but a mini-university where students and teachers could "pass to that which quite transcends scholarship -- namely thought"

(Christian, 1993, p. 222). Hence, for him, the department had to avoid the two extremes of objective positivism on the one hand and religious propaganda on the other. Faculty members were recruited from those who believed and lived within the traditions out of which they thought and taught - Christianity, Judaism, and the eastern religions of India and China.

Even though Grant (1968) encouraged practising adherents of particular religions to teach from within those traditions because they were likely "to have a particular sympathy for the seriousness of the issues involved" [11] (p. 63), nevertheless, he was very concerned that "the curriculum must not proceed from the assumption that any particular religion has a privileged status in the nature of things" (p. 63). The following personal experience illustrates his approach:

Once, at a graduate seminar in 1978, Professor Grant wished to consider various definitions of faith. Since he made it clear that he found Calvinism somewhat repugnant, Grant refrained from articulating its faith formulation but invited those students who were of that tradition to do so.

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[11] The question arises: What about unbelievers? Grant held that there was no such thing as an absolute unbeliever. His foundational assumption was that "some form of religion is coeval with man [sic]" (Grant, 1968, p. 60). No one lived in a religious vacuum. Rejection of one religion would immediately be supplanted with an openness to another. Hence, Grant called modern liberalism a "religious faith" (Grant, 1968, p. 60).

After some trepidation, I volunteered. The next week was spent reading a few Dutch Reformed theologians in order to present the Calvinist definition of faith in as defensible a way as I could muster. [12]

It was a Canadian political crisis in 1963 that spurred Grant on to write the "classic" of modern Canadian nationalism, Lament for a Nation (1970). The prime minister, John Diefenbaker, had to face a vote of non-confidence in the House of Commons over his government's refusal to allow American nuclear war-heads on Canadian soil. His government was defeated as a result, but Grant's admiration of Diefenbaker's courage to not bow to American pressure and his anger over Canada's loss of control over its own foreign policy led Grant to not only analyze the immediate political situation but also ponder the meaning of nationhood for Canada within the sweep of modern technological civilization of which the United States was the centre. This book has been reprinted a number of times and, in 1986, it was translated into French under the title Est-ce la fin du Canada?[13] Twenty years after its initial

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[12] My presentation evoked no response or class discussion. Feeling very uneasy, I questioned Grant about this privately after the seminar. He replied, "We Christians should not disagree in public." Grant's unrelenting criticism of Calvinism, present throughout his work, has challenged me to examine more closely the roots of my own tradition.

[13] Why did it take so long to be translated into French? This is another example of the "two solitudes" in Canada. Grant never presumed to speak about the French-Canadian experience. Almost all his publications were addressed to

publication, one of the leading French-Canadian journalists praised it as a "brilliant analysis of his country-men's absent-minded or enthusiastic surrender to the neighbouring empire" (Bissonnette, 1988, p. D2).

Lament for a Nation, which mourned the loss of Canadian sovereignty and declared this loss inevitable, led those who read it to become more nationalistic. For example, Grant was invited by members of the New Left to speak to rallies of students who were protesting the war in Vietnam and seeking ways to bolster Canadian independence.

By the mid-1960s, Grant was studying two thinkers who further affected the development of his own thought: Leo Strauss and Jacques Ellul. Leo Strauss was a Jewish Platonist who showed Grant the inadequacy of Hegel's synthesis of ancient and modern thought. Strauss led Grant to view the culmination of Hegel's modern universal and homogenous state as tyranny -- perhaps a happy one, but still as a tyranny. Grant saw this tyranny beginning to envelop the modern world. As a result, Grant was now even more firmly turned towards the ancients and away from the moderns.

Jacques Ellul's book, The Technological Society (1970) so impressed Grant that he began to use the word "technology" as the descriptor of what the modern world was all about. His praise for Ellul's analysis was effusive:

English-speaking Canadians.

> The danger of attempting philosophy is that one can be so taken up by the difficulties in knowledge of the whole that one is overcome by a vertigo which demolishes one's ability to look at the world with steadiness. This is perhaps the reason why so few human beings have passed beyond that vertigo to the state where they are "spectators of all time and existence." It must have taken immense steadiness and courage to have maintained unflinchingly one's gaze on modernity as Ellul has done. (Grant, 1966b, p. 60)

To be a "spectator of all time and existence" was the ancient quest of philosophy, but this is considered an illusion by those who consciously or unconsciously accept the assumptions of historicism. A historicist believes that thought cannot transcend a particular historical epoch. That we are beings of a certain time and place and that we cannot really know anything beyond the existential moment is a tenet widely held by moderns. Through one of his children, Grant began to read Nietzsche, a nineteenth-century historicist philosopher whom Grant regarded as the founder of existentialism.

In 1969, Grant gave the Massey Lectures in which he reflected on and responded to Nietzsche's conception of "time as history." Here Grant confronted the modern thinker who argued the historicist position in a powerfully,

persuasive way. Nietzsche attacked Christianity and Platonism at their roots and pronounced their so-called claim to permanent truth as ultimate delusion. Grant viewed Weber, Freud, and Sartre as derivative thinkers of this man. Long before them, Nietzsche invented the language of values, understood humans essentially as "ids" and posited the finality of becoming. Grant did not (and felt he could not) mount a proper rebuttal of Nietzsche's historicism. Instead, we have a clear and dramatic portrayal of a great thinker with Grant prodding us to a whispered question: Are we sure that this is all there is?

These lectures, entitled Time as History, were delayed in published form because George and Sheila Grant suffered injuries in an automobile accident while on holiday in Barbados in 1970. In addition, Grant published Technology and Empire (1969a), which was a collection of essays he had written between 1963 and 1969. In this volume, one sees Grant's beginning reflections on the meaning of technology.

In early 1974, George Grant gave the Wood lectures at Mount Allison University at the invitation of his friend Alex Colville the "magic realist" painter whose art echoes the ancient Greek fascination with mathematical forms. In these lectures, Grant analyzed the liberal idea of justice, taking as his starting point John Rawls' A Theory of Justice and ending with a reflection of what justice meant in the light of the Roe v. Wade decision on abortion. The

publication of these lectures, English-Speaking Justice (1974), was the first of his books to be simultaneously published in an American edition.

In the 1970s, the Department of Religion at McMaster had changed from what Grant had originally envisioned it to be. It was being increasingly dominated by the type of technical scholarship which Grant felt was ignoring the basic issues in philosophy and religion with which students needed to wrestle. Grant fought many battles within the department to prevent this, but it was a lost cause. Grant actually began to discourage some graduate students from pursuing the study of philosophy. As a former graduate student explained:

> What Grant was saying amounted to this: studying philosophy is impractical and can hurt your career. It was the last thing I expected to hear from him. We had just been discussing truth, faith, madness, and abysses, and he wanted to change the topic and discuss careers! (Field, 1993, p. 222)

Research grants were funnelled towards those in the department who wished to establish McMaster as "a major centre for historical biblical scholarship" (Christian, 1993, p. 318). To Grant, the balance in the religion department had tipped towards scholarship and away from thought. It was time to leave.

Dalhousie offered him a post which he accepted. He

left McMaster in 1980 in a cloud of controversy because of an interview he gave to a journalist explaining his reasons for leaving. In the Hamilton Spectator, Grant was quoted as saying that:

> The stress at McMaster has gone too heavily in favour of research .... Research is appropriate for the sciences and medicine but there are numerous philosophical questions which can never be solved but only illuminated anew by teaching and debate .... What is justice is different from what is a nucleus. (Van Harten, 1980, p.7)

The Globe and Mail picked up the story in which questions were raised about McMaster in particular and the role of teaching and research in general ("The Bothersome Students," 1980).

In 1983, George Grant retired. He spent the remaining years of his life reading and writing and was hoping some day to write a definitive response to Nietzsche and Heidegger. This was not to be. Instead, he published his last collection of essays, Technology and Justice, in 1986, two years before he died of pancreatic cancer. He is buried at Terrance Bay, Nova Scotia. On his tombstone is inscribed an aphorism of St. Augustine which best sums up the quest of this "classical modern": Out of the shadows and imaginings into the truth.

Technology was one of the major themes of George Grant's reflections. In the next chapter, this theme is traced over the course of his writings as his concept of technology is analyzed.

CHAPTER THREE: KNOWING AND MAKING: GEORGE GRANT'S CONCEPT OF TECHNOLOGY

> How have the universities failed in the past? They have been dogged by specialization and departmentalism so that each little segment of knowledge, cut off from the rest of knowledge, has been as colourless and unproductive as grass under a stone. Universities have served to produce techniques and technicians rather than sane ideas and thinking citizens.(Grant, 1943, p. 20)

The above quotation is one of the earliest published examples of George Grant's lifelong concern for the effect of technology on education. Here, at the age of twenty-four, Grant was aware of what he later would characterize as the "multiversities" -- what universities were becoming as a result of increasing specialization. It is obvious that he deplored this development and that universities have somehow "lowered their sights" by encouraging the learning of techniques at the expense of thinking about "sane" ideas. (What Grant meant by "sane ideas" is explored in the next chapter.) The quotation also implies that thinking citizens are at least as important to a society as competent technicians. Grant never wavered from this position. Almost forty years after he wrote the above in a book review, Grant resigned his position at McMaster University because he had failed to prevent technical scholarship from

overtaking in what, in his opinion, was the university's primary aim: to guide and challenge students to think about the major questions.

To understand Grant's position, one needs to know his concept of technology, his theory of education and how he related the two. In this chapter, his view of technology will be explicated. The next chapter will concentrate on Grant's theory of education, followed by a discussion on how he perceived technology as a threat to that theory.

Grant's concept of technology evolved over the course of his thought. Until the 1960s his reflections did not include a definition. Jacques Ellul was pivotal in persuading Grant to focus on the idea of "technique." Although, in Grant's estimation, Ellul had formulated an excellent practical definition, Grant wanted to uncover the meaning of the concept in a deeper, theoretical way. Using Martin Heidegger's work as a guide, Grant finally defined "technology" in his own terms.

Research Method

A conceptual analysis of Grant's use of "technique" and "technology" is performed in the following manner: First, his writings before 1965 on the theme of technology are examined, and, based on that examination, an explicit definition of his implied use of that concept is attempted. Second, Ellul's definition of technique as elaborated in his

book The Technological Society (1970) is reviewed. Third, Grant's use and critique of Ellul's definition in his writings between 1965 and 1973 are analyzed. Fourth, Grant's own definition of technology as he developed it after 1974 will be explained.

Almost all of Grant's works are available at the McMaster University Library.[1] I selected approximately forty of his writings for research. Two of his books, Technology and Empire (1969a) and Technology and Justice (1986a) are collections of essays, many of which had appeared previously in journals. His monographs, Philosophy in the Mass Age (1966a), Lament for a Nation (1970), Time as History (1969b) and English-Speaking Justice (1974) are slim volumes rarely exceeding 100 pages in length. Grant's most lengthy writing is his unpublished D.Phil. thesis (1950), a copy of which McMaster was able to obtain in 1992.

Writing was a difficult task for George Grant. (His wife, Sheila, was a silent but active partner in his written work). Grant cast a suspicious eye on the ideas of those academics who wrote prolifically, not only because his own disposition was not so inclined, but also because he believed that much careful reading and thought had to precede anything that was worth writing. Once, in class,

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[1] I was assisted by a comprehensive bibliography of Grant's works that is appended to George Grant: A Biography (Christian, 1993, pp. 450-460). It was prepared by K. Mark Haslett, a librarian at McMaster. Grant's publications span the years 1933 to 1991.

Grant expressed his exasperation that Jacques Ellul had produced yet another book. By the time this French sociologist and Reformed theologian died in 1994, it was estimated that he had written over 40 books and 1,500 articles[2].

Grant's elegant writing is densely packed: His style is almost poetic. (Dennis Lee, a Canadian poet, loved to read him.) But, like poetry, it can be difficult to comprehend quickly. I agree with Field (1993, pp. 216-217) that Grant's writing bears re-reading very well.

Since Grant often employed subtlety and irony, he was often misunderstood (Umar, 1992, p. 151). Another difficulty for those who wish to comprehend his position in philosophy was that he saw his role as that of negating modern theories that he believed were inadequate. Grant's comment about John Oman, the subject of his D. Phil. thesis, could be equally applied to himself: "Often what he himself asserts is described in a few cryptic sentences after a detailed and lucid criticism of other positions" (Grant, 1950, p. 30). Even though Grant's admiration for the ancient thinker Plato was evident, he never produced a commentary on any of the dialogues. Simone Weil was his modern lodestar, but he published only one article about her

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[2] Grant's critical view of John Calvin implies a rejection of the idea of creative writing. "Do you know what Hooker said about Calvin? 'He learnt by writing and not by reading'" (Grant, 1985a, p. 43)

near the end of his life. Yet, even this short piece was an angry reaction to what someone else had written regarding Weil (Grant, 1989, p. 165).

1943-1964: Technology in the Background

As noted in the introduction, Grant's comments about techniques and technicians in a 1943 book review revealed his disdain for their encroachment on the proper role of a university. However, he did not define technique; technology was not his focus at that time.

Nowhere in his D. Phil. thesis (1950) did Grant refer to technology. Yet, in his study of John Oman can be found the basis of ideas that reappear later in Grant's direct study of technology. His thesis examined the concept of nature and supernature in Oman's theology.

For John Oman, a Scottish theologian of the early twentieth century, the way humans experience nature was the basis for properly understanding nature. Nature, in this case, refers to the natural environment that has not been altered much by human activity.

Oman feared that industrialism would deprive humans of "the vision of nature in any terms save that of the tourist resort" (Grant, 1950, p. 90). Similarly, Heidegger (1977) reflected on how modern technology had shaped our perception of nature: "The Rhine is still a river in the landscape, is it not? Perhaps. But how? In no other way than as an

object on call for inspection by a tour group ordered there by the vacation industry" (p. 16).

Oman isolated four ways in which humans experience nature. First, there is awareness of the whole field. Second, apprehension occurs when one element in the field is brought into focus. Oman called these two activities perceiving nature because the "mind is engaged mainly in the contemplation by feeling of the objects as they are in themselves" [3] (Grant, 1950, p. 89). The third way of experiencing nature is comprehension (i.e., one understands what is happening with one element in the field). The fourth way, explanation, results as one seeks to understand a part of an element according to a principle.

Oman illustrated these four ways by describing a person's experience of standing on the edge of a country road. First, he or she is aware of the whole field: the cool fog, the aroma of cut hay, the shadowy trees, the early morning silence. Second, the person apprehends a man on a bicycle coming closer.[4] Third, he or she comprehends the bicycle as a means of transportation. Fourth, if the person seeks to understand how the man can keep his balance

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[3] Seeing things "as they are in themselves" became Grant's philosophic passion. This unmodern idea has its roots in Plato's ontology which is reviewed in chapter four.

[4] Why "apprehend" the bicycle and not the bird chirping in the tree? The issues raised by Oman's theory of experience go beyond the scope of this chapter. My purpose here is to sketch those ideas of Oman which help clarify Grant's evolving notion of technology.

on two wheels, he or she will end up in explanation.

The third and fourth ways of experiencing nature are called using nature by Oman. That is, "our interest is in manipulating the objects for our own free purposes" (Grant, 1950, p. 89). It is this idea of "using nature" to which Grant returned later in order to depict the spirit of technology.

For Oman, our experience of nature is skewed if the principles of explanation derived from using nature are employed in perceiving nature. Oman illustrated: Once we have discovered the principle of a lever in a solid piece of wood, everything else about the wood recedes from view except those properties of rigidity and strength that relate to our use of the wood as a lever. We move from awareness and apprehension of the wood towards comprehension and explanation so that the principle of the lever is abstracted from our original experience. This is all well and good, but, cautioned Oman, "this does not justify reversing the process so that, instead of the principle being formulated out of experience, experience is formulated out of it, till it becomes like the interpretation of the forest by a sawyer in terms of planks" (Grant, 1950, p. 139).

Oman's concern about the relationship between perceiving nature and using nature hinted at the direction of modern science which Grant would later characterize as technological:

> Men proud of their ability to control nature, equated knowledge of nature with control of it. Philosophers of this period [post Renaissance] conceived nature from inference based on the ability to control it by explanations . . . . Men so taken up became blinded to the witness of nature in feeling which is the foundation of all other relations to nature. (Grant, 1950, p. 90)

One is tempted to dismiss Oman and Grant as "romantics," but it is outside of my purpose to explicate what Oman meant by "feeling."[5] The point is that Grant's final formulation of the term "technology" incorporated Oman's sense of using, controlling or manipulating nature. Whether this was a conscious or unconscious influence is hard to determine because Grant nowhere acknowledges such a debt.

This is not to imply that Grant was a poor scholar. He graciously acknowledged those whose thought he admired. Rather, Grant's public silence on Oman can perhaps be explained as part of the strategy he adopted after 1951 to write indirectly about matters pertaining to the "supernatural." After all, Oman was a theologian, Grant's D. Phil. was in theology and the public intellectual climate

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[5] Oman defines feeling as an activity where one responds justly and completely to one's environment. It is a "sensitiveness" where one's senses are keen and active; where one's whole being is alert to appreciate all of the environment (Grant, 1950, pp. 62-63).

of his day did not encourage serious theological reflection as he found out when the Massey Commission published his report (1951).

In that controversial report "Philosophy" (Grant, 1951), there was a section worth quoting in full that demonstrated his continuing concern about techniques:

> Can it be doubted that Canadian universities exist essentially as technical schools for the training of specialists? . . . These technicians are not called upon in any systematic way to relate their necessary techniques to any broader whole. Even the traditional humane subjects such as history, the classics and European literature are in many cases being taught as techniques by which [the student] can hope to earn his living, not as useful introductions to the sweep of our spiritual tradition. . . . Philosophy is not in essence a technique. Its purpose is to relate and see in unity all techniques, so that the physicist for instance, can relate his activity to the fact of moral freedom, the economist see the productive capacity of his nation in relation to the Love of God. (Grant, 1951, pp. 119-120)

My purpose in analyzing the above is not to discuss what Grant meant by philosophy and how it is related to the "Love of God," but rather to uncover his implicit understanding of technique. First, he did not dispute the

necessity of learning techniques at the university level, but that students need a place at that level to seriously consider and question the purposes of those techniques. This activity Grant called philosophy, which, in his view, was not a technique. Second, it is obvious that what Grant meant by technique was not limited to machinery, engineering or the applied sciences. He implied that it is an activity found in "pure" science (physics) as well as social science (economics). Further, it is even found in the humanities.

At another place in the 1951 report, technique was mentioned. Here he attacked pragmatism and positivism:

> What do such positions mean but that ideas are true insofar as they help men manipulate their natural environment? Along with Marxism . . . they tend toward the position that all men's problems may be solved by scientific technique. (Grant, 1951, p. 122)

In the above, the idea presented in Grant's thesis (1950) -- the manipulation of nature -- was associated with technique. Another implication was that the exaltation of technique is shared by major modern philosophies or ideologies.

What, at this point in the analysis, would be a working definition of Grant's concept of technique? A technique is an activity -- practical or intellectual -- that has within it a manipulative stance towards nature. Although it may be an intellectual activity, it is not the highest one (this is

philosophy). Yet, it is gaining status as such across some major modern intellectual movements.

In "Adult Education and the Expanding Economy," Grant (1954b) resumed his theme of technology versus education. The following quotation is consistent with the definition above. In it, Grant expressed his awareness of society's domination by technology. He labelled the "inescapable situation within which we work and have our being" (Grant, 1954b, p. 4) as the expanding economy defined as "a society which holds that the control of nature by technology is the chief purpose of human existence and so from that belief a community is built where all else is subordinated to that purpose" (Grant, 1954b, p. 4).

In "The Minds of Men in the Atomic Age," (1985b) first published in 1955, Grant replaced the label "expanding economy" with "mass scientific society." It was written at a time when people were acutely aware of the possibility of global nuclear destruction. Yet Grant was fearful of something that he considered to be worse: "I can imagine a prosperous society, without war, of healthy animals adjusted to worshipping their machines which would be so disgusting that one could will that it should be destroyed" (Grant, 1985b, p. 284).

However, society had not yet reached that stage. He was still, at this point, hopeful about human excellence. For Grant there never was a doubt about the benefits of

technology:

> Indeed at the profoundest level we must welcome the mass scientific society, despite all its horrors. For it has put us in a new relation to nature. We can now as never before choose to make our world, to use nature and to abuse her, but less than ever before need we submit to her as necessity. For instance, with advances in contraception chastity is less motivated by fear and becomes an open decision of the spirit. (Grant, 1985b, p. 285)

Thirty years later, Grant commented on this stage of his thought and noted that he had described freedom using existentialist language -- a language he no longer used[6] (Grant, 1990, p. 16). Yet Grant never sought to escape the modern situation into some romantic view of the past. The conclusion of his 1955 essay supported this and in it Grant hoped that we could yet shape our society to nobler ends:

> Of course, this is not to say that we can or should turn back from the technological society. What I am saying is that the great job in Canada now does not lie in further economic expansion and quantitative

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[6] In 1955, Grant had not yet read Leo Strauss whose influence later spurred Grant's developing critique of the assumptions of modernity. Near the end of his life Grant defined freedom as "the liberty to be indifferent to good. This is of course a quite different use of the word from the authentic 'freedom' of modern existentialism which at its heart is an expression of heroic atheism" (Grant, 1990, p. 17).

> progress, but in trying to bring quality and beauty of existence into that technological world -- to try and make it a place where richness of life may be discovered. (Grant, 1985b, p. 289)

In an essay first published in 1956, Grant reflected on the meanings of freedom. He criticized a debased form of it, namely, the ability of a person to get what he or she wants. (Lotto 649 -- Imagine the freedom!) The following selection implies a necessary connection between that view of freedom and techniques applied to human relationships:

> It is hardly necessary to mention what the end result of a manipulative view of freedom must be on personal relations. The substitution of manipulation for contemplation turns other people into objects instead of subjects like ourselves. The loss of adoration of the other must here be most seriously corrupting. Mr. and Mrs. Dale Carnegie may be but parodies of the personnel officer and the practical psychologist, but the popularity of their techniques among the simpler success-seekers must not be forgotten.(Grant, 1993, p. 196)

Philosophy in the Mass Age (1966a), originally published in 1959, can be read as a cogent summary of Grant's thought of the preceding decade. Again, technology was addressed only obliquely since Grant's aim in these radio talks was to prod Canadian citizens to reflect on the

proper ends of society -- to engage in philosophy at a time when the mass society was making obscure what those proper ends were. In a preface added later, Grant evaluated his hopes:

> The book is . . . permeated with the faith that human society for all its pain and ambiguities is somehow to be seen as the progressive incarnation of reason. What had been lost in the immediacy of the North American technological drive would be regained, and regained at a higher level because of the leisure made possible by technology. (Grant, 1966a, p. vi)

That Grant still felt hopeful about social reform could be seen in his 1961 involvement with socialists who were articulating the theoretical basis for the fledgling New Democratic Party. In his contribution to Social Purpose for Canada (1961, pp. 3-26), Grant attacked the capitalist ethos and challenged socialists "to have a profound view of human good as society's most pressing problems become less simply quantitative and begin to involve qualitative distinctions" (p. 13). Socialists need to transform their criticisms of capitalism into proposals for change not only as "a set of specific economic and political techniques but as a higher conception of well-being -- that is, as a morality" (Grant, 1961, p. 16).[7]

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[7] Grant would, no doubt, view the Ontario New Democratic government's policy of running gambling casinos as a confirmation of his decision to reject socialism in the early

To review Grant's concept of technology as implied in the pre-1965 writings: A technique is an activity -- practical or intellectual -- that is oriented towards manipulation. It can be used for good or ill, but it is our responsibility to choose to use it for ends which can be discussed and decided by people in a democracy through an activity like philosophy which is in essence not a technique. Grant warned about the tendency in modern societies to elevate technique to an unquestioned status, but was optimistic that we could properly adjust our priorities and take control of technology before it mastered us.

After reading Jacques Ellul, Grant looked back at that time and realized that even as late as 1963, he "did not grasp what the technological society really is" (Grant, 1969a, p. 43).

Technique: The Definition of Jacques Ellul

The Technological Society by Jacques Ellul (1970) was originally published in French in 1954. Ellul, a former resistance fighter of the French underground during World War II, began his intellectual career as a Marxist. By the end of the war, he had converted to Christianity. He taught for many years at the University of Bordeaux. The

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sixties. He had concluded by 1963 that the type of morality he meant had no essential place in the progressivist spirit of socialism (Christian, 1993, p. 214; p. 241).

Technological Society is his most well-known work and is considered compulsory reading for anyone who enters the contemporary debate concerning the impact of technology on society. Grant read the 1964 English translation and it immediately re-oriented his thinking. In an address to a student rally organized by the New Left in Toronto one year later, Grant directly cited Ellul (Grant, 1965, p. 4). His hopes about reforming technological society were muted: "What I do not see is why anybody should believe that by some dialectical process of history there should suddenly spring out of this technological society a free and humane society" (Grant, 1965, p. 4).

Parenthetically, it should be noted that the preceding statement shows the combined influence of Jacques Ellul and Leo Strauss. Grant began to read Strauss in 1960 after completing Philosophy in the Mass Age (Schmidt, 1978, p. 65). Leo Strauss, a German Jew, sought refuge in the United States when the Nazis gained power in his own country. A Platonist, he taught political philosophy at the University of Chicago.[8]

By 1964 Grant was convinced by Strauss that Hegel's ideal of a universal and homogeneous state would result in a

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[8] Thoughts on Machiavelli by Strauss (1958) is a controversial interpretation of this Renaissance thinker. In the "Introduction to Educational Administration" course at Brock (July, 1992) Machiavelli's The Prince was on the syllabus but, much to my disappointment, the substance of this book was never discussed in class.

tyranny and that Hegel's masterful attempt to synthesize ancient and modern philosophy had failed to incorporate what was true in the ancient Greek account (Grant, 1969a, pp. 81-109). In Philosophy in the Mass Age Grant had left open the question whether the "dialectical process of history" would lead to a free society; now he could not see that possibility.

How does Ellul define technique? First of all, the English use of the word "technology" is problematic (Ellul, 1990, p. xv). In French, "technique" refers to the phenomenon; "technologie" is the study of it. In English, "technology," like the word "history," is used to denote the study of something with the thing itself. Grant accepted that distinction and used "technique" in this way for approximately seven years.[9] Ellul defined technique as "the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity" (Ellul, 1970, p. xxv). The Technological Society is a comprehensive, thorough elaboration of that definition. In the years since he first formulated it, Ellul has not modified that concept (Ellul, 1990, p. xii).

By putting methods at the core of the definition, Ellul was clear that this includes but goes well beyond a

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[9] A 1971 article is his last published acceptance of using "technique." A 1974 book is his first consistent use of "technology" (Grant, 1971, p. 85; 1974, p. 1).

commonsense understanding that equates technique with its artifacts, such as machines or tangible inventions. Wherever there are human aims and objectives, there are methods employed to realize them. This is not new. Techniques understood as methods have always existed in cultures. What makes modern technique radically different is that these methods are rationally arrived at and are oriented towards absolute efficiency.

Rationality and efficiency did not dominate pre-1700 societies as they do today. The moral and aesthetic dimensions of a particular culture, combined with the personality of a toolmaker, expressed themselves in artifacts that were diverse in form and appearance. For instance, Ellul noted that swords used by Swiss soldiers in the sixteenth century had at least nine different forms -- a reflection of the various modes of fabrication peculiar to the blacksmith (Ellul, 1970, p. 72). In addition, aesthetic considerations were such that these old implements would appear unnecessarily ornate to modern eyes. In the past, Ellul remarked, "it was impossible to conceive of a tool that was not beautiful. As for the idea, frequently accepted since the triumph of efficiency, that the beautiful is that which is well adapted to use -- assuredly no such notion guided the aesthetic searchings of the past" (1970, p. 72).

Ellul nowhere stated what he meant by the adjective

"rational." However, his use of rational is more clear in what can be described as a restatement of his definition:

> When everything has been measured and calculated mathematically so that the method which has been decided upon is satisfactory from the rational point of view, and when, from the practical point of view, the method is manifestly the most efficient of all those hitherto employed or those in competition with it, then the technical movement becomes self-directing. (Ellul, 1970, pp. 79-80)

Ellul's use of rational evokes a type of reasoning based on calculation.

The above citation also introduces the autonomy of technique -- something which Grant considered the most important part of the book (Grant, 1966b, p. 59). By autonomy of technique, Ellul meant that it is independent of anything external to itself, including human purposes. All other spheres in society -- politics, economics, education, religion, etc., -- have no power in altering technique outside of the rational and efficient. Ellul stressed repeatedly that the fact that technique is independent of moral ends does not prove its neutrality, but rather the reverse: Technique is its own morality and any moral residue from the past that impedes its progress is swept away (Ellul, 1970, p. 134). In philosophical terms this can be posited in the following remark attributed to Heidegger:

Technique is the metaphysic, the ontology of the age (Grant, 1970, p. ix).

Using a sociological rather than a philosophical approach, Ellul's book described how technique dominates modern societies. The first two chapters delineated the general contours of technique in a historical perspective. Chapter three discussed the relationship between technique and the economy. Chapter four analyzed technique and the state. In chapter five, Ellul explored the area of human techniques, the purposes of which are to adapt humans to the necessities of the technical phenomenon. The final chapter envisioned a future where, if present trends continue, we would all live "happily" in the most complete dictatorship. In response to critics who accused him of pessimistic determinism, Ellul stated in the 1964 preface that his gloomy forecast would be invalidated if enough people become aware of the situation and "assert their freedom by upsetting the course of this evolution" (1970, p. xxx).

One last point about Ellul's analysis: At the risk of prejudicing the issue and closing down on the inquiry (Is technology a threat to education?), it is appropriate to briefly consider how Ellul identified technique with "progressive education" (1970, pp. 344-349). On the surface, these techniques are much more humane than the brutality that characterized much of the traditional schooling. Progressive education seems to have the highest

respect for the individual child; Ellul did not belittle this. However, like Grant, he concluded that the most important aim of this movement is social adaptation:

> This means that despite all the pretentious talk about the aims of education -- it is not the child in and for himself [sic] who is being educated, but the child in and for society. And the society, moreover is not an ideal one, with full justice and truth, but society as it is. (Ellul, 1970, p. 348)

Just as Grant complained about the direction of Canadian universities, so Ellul observed that education in France is increasingly oriented towards the goal of producing technicians:

> The intelligentsia will no longer be a model, a conscience, or an animating intellectual spirit for the group, even in the sense of performing a critical function. They will be servants, the most conformist imaginable, of the instruments of technique. (Ellul, 1970, p. 349)

Taken out of context, Ellul's warnings seem shrill and tiresome. However, according to the social systems model for schools, <u>efficiency</u> in an organization is measured by how well an individual's expected behaviour conforms with his or her own work needs and motives so as to produce job satisfaction (Hoy & Miskel, 1991, pp. 43-44). Ellul's point is that a school system that centers on a child's "needs"

and "motives" is serving that long-term goal of efficiency in some present or future social organization. Carl Rogers (1983), an advocate of a similar non-directive model of schooling, described the outcome of such an education as "a fully functioning person [who] not only experiences, but utilizes, the most absolute freedom when he [sic] spontaneously, freely, and voluntarily chooses and wills that which is absolutely determined" (p. 270).

Grant's only criticism of The Technological Society was the historical outline of the development of technique. Ellul did not answer an important question for Grant: Why did technique arise in Western Europe (Grant, 1966b, p. 60)?

Ellul focused his gaze at what Grant calls the practical level (i.e., the immediacies of all of us as we experience life in modern society). Without losing this sense of our daily experiences, Grant sought to understand technique at the theoretical level, that is, what did the most able thinkers -- whether they be philosophers, sociologists, historians, or natural scientists -- write in the past and in the present which can help explain the origins of the technological society? As a Platonist, Grant believed that theories had great practical effect: He rejected the Marxist (and historicist) position that ideas are ultimately shaped by economic and other material circumstances. As he saw it, the way he could contribute in invalidating Ellul's forecast was to understand the essence

of technology -- what is at its core. This was no ivory-tower speculation, for in his view "theories are at work in the decisions of the world, and we had better understand them"[10] (Grant, 1974, p. 50).

At around 1967 Grant began to seriously read the writings of Friedrich Nietzsche and Martin Heidegger. Grant had read Nietzsche's Zarathustra in 1939. He was motivated to do a serious study because of the effect this German thinker had on Grant's own son. By this time as well, Heidegger's The Question Concerning Technology (1977) was available in English. Grant had become acquainted with Heidegger in the 1950s (Christian, 1993, p. 61; p. 268). Grant found that both these philosophers had thought deeply about the nature of modern technological society. For Grant, these thinkers went together: "It is unthinkable that Heidegger would have been without Nietzsche" (Schmidt, 1978, p. 66). Grant's reflections on technology between 1965 and 1973 can be viewed as engaging both these thinkers as he used Ellul's definition as a jumping off point in understanding how technique had come to its fullest expression in North America.

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[10] Although he was sympathetic to the Marxist critique of capitalism, Grant rejected philosophical materialism. For him people acted on the basis of what ideas they believed made sense to them. His acceptance of Plato's ontology is discussed in chapter four.

1965-1973: Technique in North America: Grant's Critique of Ellul

During the nine years after reading Ellul, Grant applied his definition of technique to the North American context. Lament for a Nation (1970) is a musing on the disappearance of Canada as a sovereign nation through the dissolving action of technique as it radiated out from its most advanced expression in the United States. The fragile traditional conservatism that initially found root in a Canada determined to exist despite its brash cousin to the south had no chance in the path of the technological juggernaut. Grant brilliantly combined the drama of Diefenbaker's fall with a concise articulation of political philosophy. Unlike Ellul, he saw an aim external to technique that was there shaping it in Napoleonic Europe as the ideal revealed by Hegel: the universal and homogeneous state.

From Ellul, one gets the impression that technique is this vast impersonal force that in some mysterious way is making slaves of us all through the incontestable majestic power of calculative reason directed towards absolute efficiency. Although Ellul's powers of description and logic convince us that we certainly experience this impersonal technical necessity on a day-to-day level as we travel on congested freeways and interact with complex bureaucracies, nevertheless, one is left with a sense of

paralysis combined with a feeling of incredulity that this autonomous technique just is. Grant's philosophical interest leads to an understanding of how this prodigious technical phenomenon is our fate. In this sense, Grant seems more of a humanist[11] than Ellul. This is clear in Grant's use of the word fate:

> In our day, necessity is often associated with some fate in the atoms or the "life force." But historical necessity is chiefly concerned with what the most influential souls have thought about human good. Political philosophy is not some pleasant cultural game reserved for those too impotent for practice. It is concerned with judgements about goodness. As these judgments are apprehended and acted on by practical men, they become the unfolding of fate. (Grant, 1970, p. 94)

In thinking about the North American political fate, Grant believed that there was an "inevitable relation between dynamic technology and imperialism" (1969a, p. 72). Since technology was oriented towards the development of a universal state, any society that was propelled by this dynamo would be imperialistic. Since the United States embodies the unfolding of technique in its fullest form,

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[11] I define a humanist as someone who believes that a human being cannot essentially be explained or reduced in reference to non-human terms. For instance, according to this definition, a person who believes that humans are essentially sophisticated systems of chemical reactions is not a humanist.

Grant attached the scandalous label "empire" to this home of self-conscious democratic ideals. The Vietnam War, for him and many others, was proof the United States was the centre of an empire, and that Canada was a junior member (Grant, 1969a, pp. 63-78).

Grant called his essay "In Defense of North America" (1969a, pp. 15-40), an implicit criticism of Ellul's definition (1969a, p. 11). Here Grant's humanism is evident (a source of optimism), but he gave technique a broader scope than Ellul (a source of pessimism). More than Ellul, Grant emphasized that technique is at the core of who we are:

> Western technical achievement ... is not simply external to us .... It moulds us in what we are, not only at the heart of our animality in the propagation and continuance of our species, but in our actions and thoughts and imaginings. (1969a, p. 15)

Yet technique derives its power from human ideas, commitment and energy. Grant's essay traced the history of technique in North America. Since the United States is the first society to have no memory from before the age of progress, technique could flourish there because of few moral encumbrances from ancient traditions.

"The meeting of the alien yet conquerable land with English-speaking Protestants" (Grant, 1969a, p. 19) was the primal that shaped North Americans. Those Calvinists shared

with the new Baconian scientists a rejection of medieval Aristotelianism. Hence, they were open to the discoveries of those sciences. The pragmatic determination of those early Calvinists to build a new society with an openness to using the new sciences for that purpose, created the initial drive behind technique. As this Calvinism became secularized, the drive remained as the liberal idea of progress:

> Those uncontemplative and unflinching wills without which technological society cannot exist, were shaped from the crucible of a pioneering protestant liberalism. (Grant, 1969a, p. 25)
>
> What makes the drive to technology so strong is that it is carried on by them who still identify what they are doing with the liberation of mankind. (Grant, 1969a, p. 27)

The opening sentence in "A Platitude" expressed Grant's awareness of the difficulty in evaluating technique, once it is understood as located within us: "We can hold in our minds the enormous benefits of technological society, but we cannot so easily hold the ways it may have deprived us, because technique is ourselves" (Grant, 1969a, p. 137). Grant's changed understanding of technique showed the influence of Nietzsche, who pushed the envelope of a radical historicism to its limit by declaring that there is no meaning outside of that which we create: "Technique comes

forth from and is sustained in our vision of ourselves as creative freedom, making ourselves, and conquering the chances of an indifferent world" (Grant, 1969a, p. 137).

In Time as History (1969b), Grant continued his quest to get at the essence of technology. As Ellul avoided philosophy and limited his scope to the relative immediacies of sociology, so Grant turned away from sociology towards philosophy. "It is not about the multiform predictable behaviours of modern technical society that I wish to write. It is about the animating source from which these behaviours come forth" (1969b, p. 8).

A large part of the animating source for technique is the modern understanding of time as history. For many of the ancients, particularly the Greeks, time was conceived as the moving image of eternity (i.e., changing time is enfolded in something unchanging that is beyond time). Events in time were considered meaningful to the degree that they reflected something eternal beyond time.

Through the influence of Biblical religion, the idea of the eternal within time took root in the West (e.g., the Christian belief that God was incarnated in Jesus). Christianity was based on the eternal significance of an historical event -- the crucifixion of Jesus. In emphasizing the providence of God, Calvinists helped establish the idea that all events in time were the unfolding of God's will. As Christianity was secularized,

the deeply held idea of the significance of historical events turned away from providence towards progress. Time as history for moderns means the progressive unfolding of meaning through technique: We make our history.

Besides how we view time, another part of the animating source for technique is how we view ourselves. Nietzsche boldly faced the implications of the discoveries of modern science about ourselves: We are evolutionary products of necessity and chance. For Nietzsche, "species" or "beings" are inaccurate descriptors of ourselves for they hint at permanence. He preferred the metaphor "bridge" -- we are a bridge from what we were to what we will become (Grant, 1969b, p. 27). Nietzsche called us to see the older traditions of meaning as clever illusions unconsciously devised to hide from ourselves the terror of the abyss -- nothing essentially "good" exists. His hope was that as we purge ourselves of the old myths and suffer through the agony of disillusionment, there will appear those "superhumans" who have overcome the spirit of revenge to love the fate in which we find ourselves. They will lead us as deserving masters, striving to make the world, re-make ourselves, and make meaning through the power of technique. "We must live in the knowledge that our purposes are simply creations of human will and not ingrained in the nature of

things" (Grant, 1969b, p. 30).[12]

As Grant pondered on the sources that animate technique -- the understanding of time as history, the vision of ourselves in the finality of becoming, combined with the desire to overcome chance (1971, p. 85; 1973, pp. 190-191) -- he realized that Ellul's definition was necessary but not sufficient. It is to Heidegger that he now turned for illumination (Grant, 1969b, p. 18).

1974-1988: Knowing and Making: Grant's Definition of Technology

George Grant's final concept of technology was best defined in the essay "Thinking About Technology" (1986, pp. 11-34). It was a reworking of ideas expressed in two earlier articles (Grant, 1975; 1976). In his definition were resonances of his encounters with the thought of John Oman, Jacques Ellul, Friedrich Nietzsche and Martin Heidegger.

It is obvious that I have omitted a direct review of Nietzsche and Heidegger and an analysis of how their thinking affected Grant's definition of technology. Why do this with Ellul and not with them? First, Ellul's definition is more accessible for analysis. A review of it

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[12] This is Grant's explication of Nietzsche. This statement does not reflect Grant's Platonic position which held that ultimate purpose is, however dimly perceived, "ingrained in the nature of things." Grant is using irony here.

helps to provide a comparative foil to Grant's definition as he used, critiqued and moved past it. Second, to properly understand how technology is defined in the subtle writings of Nietzsche and Heidegger requires the same careful reading that Grant employed -- something that goes beyond the scope of this study. The sketch of Nietzsche's thought presented in this chapter is based on Grant's interpretation.

By 1974, Grant had changed his mind about the appropriateness of the word technology. Technique does not capture as well the novelty of the modern phenomenon. The combination of the Greek words techne and logos points to a new co-penetration of the arts and sciences that is expressed by the neologism, technology. Techne is a Greek word meaning art -- but art in the more inclusive sense of making. Logos stands for discourse, word or reason. When it is used as a suffix, such as in the word biology, it means the "systematic study of." By toying with the word in this way, Grant correlated techne with making (the arts) and logos with knowledge (the sciences).

How does technology better capture the modern phenomenon? Technique suggests that our making and production have simply progressed in efficiency and complexity from what the ancients did in their techne. Technology better expresses that the modern phenomenon is a new union, a co-penetration of making and knowing in which both activities are changed. On the surface, we can see the

interdependence of knowing and making when we consider that new tools are designed as a result of scientific discoveries, and, vice-versa, these new tools make possible new discoveries. The cyclotron, the electron microscope and the Hubble telescope are obvious examples of this. Yet it is not clear how knowing and making are changed until we compare them to how these activities were understood by the ancients.

Aristotle defined art as "a rational faculty exercised in making something" (Thompson, 1974, p. 175). It included what we now consider as arts, crafts and manufacturing. Art was concerned with bringing into existence something that was not there before.

Ancient science was concerned with the study of things as they are -- and the highest science, philosophy, was focused on perceiving and understanding that which could not be brought into or put out of existence: the eternal (Thompson, 1974, p. 174). The activity of the ancient scientist did not base itself on experimentation, but on contemplation. The metaphysical flavour of ancient science is repugnant to those who accept the fact/value dichotomy. The "eternal" is something we speculate on according to our own "value" systems. This modern stance is the end result of a process that began in the seventeenth century when there was a deliberate turning away from the ancient science that was animated by the hope that the proper ends of humans

could be discovered in the nature of things.

Once the object of science -- knowing -- shifted, however slightly, from that which was unchanging to that which was changeable, it was leaning into the realm of art. This is what Grant meant by technology as "applied" science in the literal sense -- science is folded towards art; knowing is folded towards making. A favourite example for Grant was the activity of nuclear physicists at Los Alamos in the 1940s:

> Physics was being "applied" not only in deciding that American interests required the making of atomic weapons, but also in the sense that the very discoveries of the science were in their essence folded towards the mastery of the energies of nature, in a way that was absent in the pre-modern sciences. (Grant, 1986, p. 14)

Here Oman's idea of "using nature" (Grant, 1950) comes back to haunt. The sawyer who knows the forest as a potential for lumber has his knowledge folded towards making. Nature -- human and non-human -- exists as potential raw material. Heidegger (1977) defined it as "standing reserve" (pp. 17-19). Is not this knowing-folded-towards-making what Oman called experience being formulated out of a principle? Changed in its essence from contemplation as it was co-penetrated by making, the activity of knowing is characterized by Grant as follows: "We research knowledge

when we represent things to ourselves as objects, summonsing [sic] them before us so that they give us their reasons" (Grant, 1986, p. 99). This modern way of knowing that is at the heart of technology tempts one to use the evaluative word "interrogation," especially when humans themselves are objectified as standing reserve. This is hinted at with the term "human resources." Yet is not genetic engineering a search for knowledge in which our very humanness is laid before us to give us its reasons?

At the commonsense, even crude, level, one could say that the arts and sciences have switched places since ancient times. Today, the activity of the older science would be looked at with a smile and pronounced "artsy," whereas the modern sciences are <u>it</u>: They are on the cutting edge of <u>making</u> things happen.

At the deepest level, knowing has become a kind of making in that knowledge is now understood to be constructed -- whether we are discussing the social construction of reality or basic paradigm shifts in science. The search for a truth "out there" is an antiquated language concealing from us that the abyss is primary. For Grant, at the heart of technology there was a nihilism that we paper over with phrases such as "the ascent of life," "human beings making their own future," "the progress of knowledge," or "the necessity of interfering with nature for human good" (Grant, 1986, p. 33).

How has making changed as a result of this co-penetration? Grant never directly answered that question, but an answer will be attempted that seems consistent with his view. Since the discoveries of modern science have progressively laid the energies of nature at our disposal, the arts have been enhanced in their productive power such that the very environment we inhabit is largely of human construction. This production has so displaced the natural environment -- the one we depend on for sustenance -- that we live with an ecological crisis. But describing the new arts as simply a power enhancement of the old techne does not show any essential change in the activity.

How has knowing penetrated making to effect such a change? The arts have been transformed by the injection of rationality. As Ellul pointed out, this "rationalizing" of the arts, pushed the aesthetic element to the fringes; in fact, the very definition of aesthetics was transformed to mean the beauty of efficiency. The older understanding of aesthetics has found some refuge in what we now call the "fine arts," a nice cultural diversion to which we can be treated if there is time left over from our obligation to rational production, but it is no longer at the heart of production, except as a means to entice the consumer via advertising.

To summarize Grant's concept of technology: On the face of it, technology appears as the vast array of machines and

inventions that are developed as a result of applying the discoveries of modern science. Staying with this sense of technology as applied science, we see it as a set of tools that we can choose to use or lay aside according to purposes that are outside the domain of technology.

But this hides how technology shapes us both externally and internally. Surrounded by the artifacts of technology -- factories, office complexes, malls, suburbs, automobiles, computers, etc., -- our experience of the environment in present-day North America is radically different from the original white settlers whose experience of nature was even more at odds with the way the aboriginal peoples experienced it. Yet those settlers brought with them the internalized co-penetration of knowing and making that we share with them at the core of ourselves.

Technology is applied science in the literal sense. It is a new co-penetration of the arts and sciences in which both activities are changed. The application of modern science means that knowing is folded towards making.

In reading Grant, one may receive the impression that technology is inherently evil. Certainly, to describe its heart as nihilistic is, for some, a condemnation. But that assumes that the assertion "the abyss is primary" is not true. Certainly Grant believed it not to be true. "Characterizing technological society as essentially nihilistic prejudges the whole question of what it is. Such

a dismayed reaction is as likely to close down thought about its nature as much as does any progressivism" (Grant, 1986, p. 29). George Grant was passionately determined to see things as they are. He refused to closed down his thought about the modern project or give up what he believed was true in ancient thought. He knew there was no turning back to some idealized vision of the past in the light of the discoveries of modern science. He always acknowledged the benefits of the technological society.

Grant profoundly disagreed with Heidegger on the ultimate questions (Grant, 1991, p. 53). He followed Plato on these matters. Heidegger followed Nietzsche. The fact that Grant could be open to Heidegger's description of technology, despite these differences, convinces this writer, at least, that Grant had matured much as a thinker since he wrote his controversial 1951 report on the state of philosophy in Canada.

CHAPTER FOUR: KNOWING AND LOVING: GEORGE GRANT'S VISION OF EDUCATION

George Grant was passionately concerned about the direction of modern education. Through speeches and articles, he revealed a love for education that included a warning that something essential to the meaning of education was being undermined by the development of technology.

In this chapter, two questions are posed around which Grant's writings on education will be analyzed. First, what was George Grant's vision of education? Second, how did he see technology as a threat to that vision? Louis Greenspan, a former student and colleague of Grant, reminds us that finding clear answers to questions such as these is not easy: "There are those who seek in Grant's philosophical writings a systematic statement of philosophical first principles, a summum Grantium, but this exercise is very hazardous" (Greenspan, 1990, p. 4).

As noted in the previous chapter, Grant's polemical writing style defies quick analysis. His critical approach to other positions is a stance as old as Socrates who was accused of playing the "game of questioning and refuting someone else, instead of giving an answer himself" (Cornford, 1974, p. 17). Even here, Grant's repudiations of other educational theories were not thorough critiques. For example, Grant often criticized in an unsystematic way the ideas of progressive education, and, in particular, the

pragmatism of John Dewey (Grant, 1945; 1952; 1953; 1954b; 1955; 1966a; 1969a; 1985b; 1993).

Whatever the validity of these criticisms, Grant never attempted a proper critique of Dewey's ideas. He extended this courtesy to Karl Popper (Grant, 1954a) and Bertrand Russel (Grant, 1952) even though he bordered on ridiculing Popper's understanding of Plato and cast doubts on Russel's stature as a philosopher. Since Grant viewed Dewey as a major influence in the direction of North American education, a comprehensive analysis of Dewey's ideas by Grant would have contributed to a debate on Dewey's impact, particularly since some critical theorists conclude that Dewey's proposals for school reform went nowhere (Bowles & Gintis, 1976).

To add to the difficulty of analysis, Grant's ideas changed through the course of his writings. Someone who attempts to sketch a "summum Grantium" on education must keep in mind how the later Grant viewed the earlier Grant. For instance, in a preface to an article which he had first published six years earlier on the place of religion in public schools, Grant called his piece folly because "it did not grasp what the technological society really is" (Grant, 1969a, p. 43). Why, then, would he allow it to be republished? His cryptic answer: "There would be little point in republishing this essay simply as an illustration of my own changes in thought or my particular vices, but

something like this happens in all open thinking" (Grant, 1969a, p. 44). The process that he called "open thinking" was a constant in his life and is a keyword in understanding Grant's vision of education.

A more dramatic example: Grant published a 1988 addendum to an article first written in 1953 in which he identified the chief mistake he made in the earlier piece. He had used the language of modern existentialism in explaining certain Biblical ideas (Grant, 1990, p. 16). A few months before he died, Grant viewed his own education as a lifelong, continuing struggle to free himself from the language of modernity (Grant, 1990, p. 17). Words such as "ideals" and "values" which he had liberally used in his pre-1960 writings were eschewed later on. This striving to transcend in thought the assumptions of his age was a conscious rejection of historicism and an expression of faith, based on ancient Greek and Christian traditions, that there is truth out there and that it can be known.

To return to the problem of analysis: Being aware of how Grant's ideas and use of words changed, one must carefully sift through his writings, pull out the salient ideas on education and then allow those ideas to be qualified by Grant's later work. The distillation which follows spares the reader some of the details of this sifting and qualifying in the interest of clarity.

Grant's Vision of Education

Grant's ideas on education may be grouped around three themes: first, his polemics on progressive education, second, his acceptance of Plato, and third, his admiration for Simone Weil.

The case against progressive education. Early on in his career, George Grant championed the cause of the "traditional" educator. In 1945, Jean Morrison, the editor of Food for Thought, the journal of the Canadian Association for Adult Education, claimed that this older method of instruction taught that ideas were aloof from action. Students grounded in the classics could appreciate the good, the beautiful and the true but were never directed "towards trying to achieve the good in their own community" (Morrison, 1945, p. 2). In the next issue, Grant retorted:

> The claims of classical education were not that they cut people off from life but rather that by their techniques they taught people to see life clearly. Classics, history, philosophy, were not taught in an effort to detach ideas from reality; they were taught so that people would have a strong, tough instrument with which to analyze reality. (Grant, 1945)

In a 1948 review of R.S.K. Seeley's book, The Function of the University, Grant expressed disappointment in the fact that Seeley failed to mention how universities are governed by businessmen. This political reality had

consequences for the future growth of the science departments and the teaching of classics: Is there any doubt how the financial resources would be allocated? Nevertheless, Grant praised the book as "a clear and well intentioned statement of an ideal which reconciles the best in all possible worlds satisfactorily for all concerned" (Grant, 1948, p. 44).

Seeley's short book is not very provocative but it is worth noting his ideas of higher education which seemed so praiseworthy to Grant. Seeley's definition of education is the old liberal arts view: It was a seeking after truth to gain knowledge and wisdom so as to know how to live. He cited John Milton: "I call therefore a complete and generous education that which fits a man [sic] to perform justly, skilfully and magnanimously all the offices both private and public of peace and war" (Seeley, 1948, p. 21).

The specialist, to be effective in his or her field, needed this general, liberal arts education. It was not simply to be a series of survey courses that acted as an annoying prelude for the student whose goal was engineering or medicine. It was hard work:

> At some point the student must be made aware of the discipline involved in an enquiry of truth. He [sic] must be shaken from the assurance that the answers lie in the textbook. He [sic] must be discouraged from being content with these prescribed horizons and must

> sense in the whole atmosphere of lecture room and library and common room a spirit of enquiry, a cultivation of mind, of which his prescribed courses are but the setting and the background, and which demand of him a self-imposed discipline of research and study. (Seeley, 1948, pp. 14-15)

However, what Grant overlooked in Seeley was a phrase for which he would later mercilessly criticize pragmatists. Seeley defined a university as "a community of people pursuing knowledge and truth for the sake of more perfectly adjusting themselves to society" (Seeley, 1948, p. 16). Grant would later view this education for social adjustment as a "lowering of the sights" because, in the classical view, excellence in education was defined as a journey of the mind that transcended social parameters.

In a series of articles and talks given in the fifties, George Grant attacked the philosophical basis of progressive education -- the pragmatism of William James and John Dewey[1] (Grant 1953; 1954b; 1955; 1966a, pp. 82-97). Grant contrasted the traditional theory of education over against this progressivism. Although he did not explicitly phrase

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[1] This was an about-face for Grant. A decade earlier he had considered himself a North American pragmatist, named James and Dewey his favourite philosophers, and considered Dewey's pedagogic creed a "complete justification" of his father's life as a school teacher (Christian, 1993, p. 84). His biographer did not record clear reasons for Grant's radical rejection of pragmatism except to suggest that it stemmed from his wartime conversion experience (Christian, 1993, p. 104).

them, Grant saw two major questions at issue between these theories: One, is there a God or the Good, and does the existence of such ultimate Reality really matter in a theory of education? Two, what is the role of reason in education? Is reason something that defines that which is essentially human? Is reason peripheral to our core humanity? Is reason essentially an instrument used by the "id" to manipulate nature according to subjective purposes that themselves have no rational basis? For Grant, questions such as these were foundational in any theory of education. The answers would determine the curricula for children and adults.

In the classical tradition of education, the existence of ultimate Reality or Truth or God, although not proven at the outset, was assumed. The purpose of education was to train the mind to seek after this reality and, from the discoveries made, the student would order his or her life in harmony with the "truths" so discovered. The educated person trained in contemplation would increasingly perceive the truth and increasingly know it -- outside of any consideration for the modern idea of empirical proof. The life lived in harmony with these ideas apprehended in contemplation would display the truth in action through virtuous living and so "prove" them.

In Grant's view of the pragmatist approach to education, a different decision is made at the outset.

Unlike the classicist, the pragmatist takes the problem of proving the existence of "truth" as a reason to not assume its existence. Since it cannot be rationally appropriated at the beginning of the educational journey, the question of the existence of this "ultimate reality" is set aside. Different people have different answers to this question and since rational discourse has not been able to settle these metaphysical differences, reason is not seen as capable of grasping these so-called truths. It is a question of individual preferences or "faith." Any public educational institution must not only respect these differences in a pluralistic society but any discussion of these separate positions concerning ultimate truth must stay at the level of "information about" rather than "debate between."

Since these ultimate questions cannot be rationally resolved, pragmatism restricts the role of reason -- it can only be used to deal with solvable problems in the practical realm. In pragmatism, "Reason operates for dealing with the world but not for giving one truth for how one should act or what one should worship" (Grant, 1955, p. 279). Grant viewed John Dewey's basic proposition as being that:

> Reason is only an instrument for manipulating the world. The religious, ethical and metaphysical questions ... are a realm where reason cannot operate .... But this proposition cannot be justified in thought. You cannot by reason show that reason has no

power. (Grant, 1955, p. 279)

According to Grant, this contradiction in pure pragmatism is what showed it to be a false philosophy:

> That pragmatism is not a philosophy at all but the denial of philosophy can, of course, be seen in its central contradiction, namely its making of theory subordinate to practice. For a theory which asserts the subordination of all theory to social usefulness has no way of knowing whether its own theory is true. (Grant, 1953, p. 4)

Grant concluded that a pragmatic theory of education was founded on a profound irrationalism, whereas in the classical view, the place of reason was supreme in that it was believed that ethical and moral questions could be discussed based on a hope that the infinite universe had a rational basis that could be known.

An impatient, radical pragmatist might retort as follows: "Let's stop this ivory tower speculation! You philosophers have had 2,500 years since Plato to come up with the answers. Let's face it -- there are no answers out there. Let's quit wasting our time spinning our intellectual wheels with questions that cannot be rationally resolved. If you need the comfort of religion or myth to settle your emotions so that you can function in society, well and good; otherwise see a therapist to help you with your ontological insecurity. Let's get on with the job of creating a better

society and dealing with problems that we have the power to do something about, such as poverty, crime, war and disease. We, and our children, need to be educated in such a way that we are equipped with the technical skills and right attitudes to tackle these pressing problems."

Grant agreed with the necessity of confronting these practical issues. However, he felt that since pragmatism was so theoretically weak and had lower expectations for the role of reason, it would fail on a practical level in the long run. Classical education, as he noted above, did not aim at cutting promising thinkers off from life to speculate idly while the world seethed in agony. Rather, it aimed to develop keen minds to take the longer view so that practical problems such as crime and poverty could be correctly understood in order to "solve" them in a lasting way. Classical education, though it seemed impractical at the outset -- (Why study the War of 1812? How will it help me get a better paying job when I grow up?) -- was more practical in the long run. Pragmatism might be successful in the short run as long as its practitioners were guided by certain moral ideas that they had inherited from the ancient tradition. (Is not a genuine concern for alleviating suffering partially rooted -- in the West at least -- in the Christian tradition of charity?) Yet once circumstances were to change, and the irrational basis for these moral ideas exposed, why would concern for one's neighbours be

considered good? For example, the belief in the equality of human beings might be explained as a preference of a certain class, a necessary moment in the evolution of the race, or a nice emotion that no longer is practical.

For Grant, the fact that the 2,500-year-old debate about foundational questions had not been resolved did not necessarily mean that these questions should be banished from the court of reason. On the contrary, it was Grant's belief that this intellectual striving with these questions was what brought out the best in humans. An educational system that ignored these questions or relegated them to secondary status was reducing the possibility of excellence in its students. A university that allowed its students to view this type of discourse as just so much philosophical semantics was encouraging a trivializing of the purpose of the institution.

One of Dewey's claims was that he was attempting a democratic model of eduction which could strengthen the democratic way of life. Grant argued that pragmatism would ultimately fail in doing this. George Grant was a staunch supporter of democracy and firmly believed in the moral and political equality of all humans. Yet he could see no other sustaining basis for this equality than a religious one. Grant argued that there was no earthly reason to treat people of unequal abilities equally (Grant, 1961, pp. 21-22). Nietzsche and Grant both perceived the implications of

the public abrogation of the religious basis of equality more clearly than pragmatists who assumed such equality to be self-evident and did not recognize their emotional commitment to this principle as an echo of a dying secularized Christianity. This is how Grant would answer the question: Does the existence of ultimate reality really matter in a theory of education?

The acceptance of Plato. How then did Grant define education and knowledge? He broadly defined education as "all the activities of the human mind of which philosophy is the crown" (Grant, 1953, p. 4). More specifically, it reminded him of Plato's allegory of the cave "wherein human existence is described as the movement out of the shadows and imaginings of ignorance into the sunlight of knowledge" (Grant, 1953, p. 4). By knowledge Grant meant "any means that brings the human spirit to self-consciousness"[2] (Grant, 1953, p. 4).

The purpose of education was to make people free. "This freeing of the finite mind from the chains of illusion was the purpose of life and by definition its goal was infinite" (Grant, 1954, p. 6). Freedom was not a stance humans had before this process of education began in their lives -- Grant rejected the existentialist notion of "authentic" freedom. Freedom was the acceptance of truth

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[2] By "self-consciousness", Grant is using a modern term to describe the ancient dictum: Know thyself. This is an example of the early Grant using "existential" language.

received once this truth had been apprehended through education. "Whatever differences there may be between Platonism and Christianity as to how and when truth is given us, it is clear that in both freedom is given us through truth. 'The truth shall make you free'"[3] (Grant, 1990, p. 16).

The allegory of the cave in Plato's Republic had a tremendous impact on Grant's view of knowledge and education. Plato's epistemology and theory of education form a unified account together with an ontology that seems to be quite the opposite to what it claims to be from a modern perspective. What Plato would call "real," we would call "ideal." What we would call "real" he would call "illusion."

It is not clear how much of Plato's ontology, epistemology and theory of education Grant accepted. He often compared the death of Socrates with the death of Christ. George Grant was certainly the living embodiment of the tension between Athens and Jerusalem -- the same poles of reason and revelation that he identified as being the two primals of Western civilization. Certainly, in the latter half of his academic career, he used the Platonic term, the

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[3] These are the words of Jesus according to the gospel writer: "If you hold to my teaching, you are really my disciples. Then you will know the truth and the truth will set you free" (John 8:32). "What is truth?" Pilate asked Jesus at his trial. No answer is recorded for us (John 18:38).

Good, in the place of God. Yet, for Grant, when it came to considering what activity was the height for humans, love as defined in the Gospels was higher than contemplation in Plato's Republic.

Plato was a realist in the traditional philosophical meaning of that term. Webster's Seventh New Collegiate Dictionary (1967) defines realism as the "doctrine that universals exist outside the mind." Education in Plato's world was a journey upward from the world of appearances (the visible world, immediate to the senses and always in a constant flux or change) through to the intelligible world (the invisible world to the senses and only apprehended by the mind). Piaget's cognitive theory follows a similar pattern from concrete operational (dealing with visible objects) to formal operational (dealing with abstract concepts). Whereas Piaget's paradigm for his cognitive theories was conceptualist (i.e., the universals existed in the mind only), Plato believed that the objects of the intelligible word, the forms, existed as much outside of the mind as did visible, concrete objects. In fact, he would argue that the invisible forms such as beauty or truth were more real than the concrete, visible objects. His argument for their reality was based on permanence. In the intelligible world the sum, two plus two, always equals four. In the visible world things are always changing their form, -- decaying, eroding, rusting -- and are always

passing into and out of existence.

What feature of Plato's theory of education would George Grant most likely affirm? The aim of education in Plato's imaginary city-state was to develop four main virtues in the students: temperance, courage, wisdom and justice. In primary education, the curricula would be closely monitored so that no stories or music would be taught that might discourage the development of those virtues.

The curricula would be divided into two main branches -- the training of the body and the training of the mind or soul. Both these branches would have the common aim of educating the soul to develop the four virtues.

Higher education would consist of two stages. Mathematics would be taught to cultivate in the mind the ability to perceive the abstract forms. Those who mastered this stage could proceed -- usually not until the age of thirty -- to engage in "dialectics," which consisted of the two activities of contemplation and dialogue in order that the student's mind could eventually perceive the eternal forms -- beauty, truth, justice. Plato believed that one form was supreme on which all else was dependent -- the Good -- which was beyond being (Cornford, 1974, p. 220).

There are certain features of Plato's educational system which seem to the modern eye to be non-traditional or even "progressive":

1. Women were included in the total educational system and in every area of society right up to the ruling Guardian class (Cornford, 1974, p. 262).
2. Instruction in the primary grades avoided compulsion. "Enforced exercise does no harm to the body, but enforced learning will not stay in the mind. So avoid compulsion and let your children's lessons take the form of play" (Cornford, 1974, p. 258).
3. Knowledge was not something an educator could pour into someone's head. Each student possessed the power to learn. The instructor's job was to turn their minds in the right direction. (Cornford, 1974, p. 232).

George Grant's passion to see things "as they are" is based on his acceptance of Plato's ontology and epistemology. Socrates was very hesitant about describing truth itself and he would only use an allegory to illustrate the Good:

> I cannot be sure whether or not I see it as it really is; but we can be sure that there is some such reality which it concerns us to see ... no one will maintain against us that there is any other method of inquiry which systematically attempts in every case to grasp the nature of each thing as it is in itself. (Cornford, 1974, p. 253).

The admiration of Simone Weil. George Grant greatly admired Simone Weil because, to him, she was not only a

great thinker but she had lived out her life in such a way that he called her a "saint" -- by which he meant someone who gave herself away. Like Grant, Weil intellectually combined Christianity and Platonism. Weil taught Grant, even more than Strauss, how to read Plato.

It was Weil's definition of faith that helped Grant make clear his vision of education as the interdependence of knowing and loving (Grant, 1982; Grant, 1986a, pp. 35-37). She defined faith as the experience that the intelligence is illuminated by love. Grant spent much time trying to understand that definition. One way he did that was by analyzing the key concepts - love, intelligence, illumination and experience.

"Love is consent to the fact that there is authentic otherness" (Grant, 1986a, p. 38). Grant did not accept the distinction many Westerners (especially Christians) have made between agape (giving love) and eros (need love). Love was a continuum of desire -- expressing a genuine need -- from a foot fetishist to St. Francis' love for the lepers. Love is an expression of desire or need for that which is other to us. Sexual love is a clear and powerful illustration of this -- but when sexuality is cut off from love, it becomes a using of the other person for self-gratification without regard for the other. The other becomes a sex object for us and when that happens the experience of the reality of the other person is diminished.

Since we instinctively know that this objectification of another human is not good, it is a way for us to begin to understand that "objective knowledge" may be a contradiction in terms.

Objective knowledge is the goal of modern science. Grant had a problem with that idea because to know something as an object -- literally "thrown against" -- was to destroy the possibility of knowing something on its own terms (as it is in itself). For Grant, objective knowledge was not knowledge at all for the process of turning anything into an object for research denatured the very thing that one was seeking to know.

Can we truly know another person when we do not love him or her? In the older English of the King James Version of the Bible, the statement that Adam knew his wife Eve was a description of the act of sexual love. That statement also echoed the pre-modern notion that loving and knowing were interdependent.

To have regard for the other is a waiting on the other, a giving of attention so that one is receptive to what the other will present to us. We realize this in our social discourse when we force ourselves to truly listen to another person. We must discipline ourselves to stop our own train of thought, a tendency to daydream or think about something else that interferes with our reception to the communication given by the other. In return, when the person who is

conversing with us is aware of our attention, he or she feels in some measure loved. The fact that Grant saw "authentic otherness" as the core of loving shows how far he had moved from the ideas and language of existentialism. In this account, hell is defined as being one's own, as belonging to oneself,[4] -- the state of the tyrant's soul painted in the Republic. Sartre wrote that hell is other people.

The definition of intelligence is more problematic. Is there a certain standard of measurable intellectual ability that one must possess before that intelligence can be illuminated by love? Again, Grant never directly answered that question. Sometimes one gets the impression that Grant preferred an aristocratic model of education and government where the best and the brightest were encouraged to join that extremely small group of contemplative philosophers at the apex of Plato's Republic. Other times in class he would throw out an aphorism such as, "The village simpleton who truly loves his neighbour is wiser than Aristotle." He always believed that love was higher than contemplation. I think it is safe to conclude that Grant and Weil both held that it was not the power of the intellect that was the determining factor in possessing knowledge but the degree to which the intelligence had been illumined by love.

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[4] The greatest comfort for a Christian is the realization that one does not belong to oneself.

The above conclusion is supported by Simone Weil's essay on education, "Reflection on the Right Use of School Studies with a View to the Love of God" (Weil, 1974, pp. 66-76). The purpose of school studies, she thought, was not ultimately to pass examinations or become proficient in a certain area of knowledge. It was to cultivate that faculty of attention that was the substance of prayer and of loving one's neighbour:

> A Latin prose or a geometry problem, even though they are done wrong, may be of great service one day, provided we devote the right kind of effort to them. Should the occasion arise, they can one day make us better able to give someone in affliction exactly the help required to save him [sic], at the supreme moment of his [sic] need. (Weil, 1974, p. 76)

Not only is lack of ability in a certain subject area not considered a liability in Weil's view of education, rather, it is considered an advantage in developing a person's capacity for attention over against someone for whom learning comes easily.

Weil's definition of attention uncovers further the Platonic epistemology and ontology that undergirds Grant's thought - seeing something as it is in itself, being receptive to otherness:

> Attention consists of suspending our thought, leaving

> it detached, empty and ready to be penetrated by the object .... Our thought should be empty, waiting, not seeking anything, but ready to receive in its naked truth the object which is to penetrate it. (Weil, 1974, p. 72)

The word illumination evokes the metaphor of the sun used by Plato to describe the attainment of knowledge. The sun in Plato's cave allegory stood for the supreme form - the Good. The sun was the source of light that made it possible for the prisoners emerging from the darkness of the cave to see actual objects as opposed to the shadows flickering on the cave wall that they had previously believed were real. Yet, the sun was not only a light source making vision possible it was also the energy source for all life on earth. In the same way, the Good was not only the source of illumination for the mind, it was also that which sustained the existence of the mind.

Finally, faith is an experience which Grant defined as "something given to us" (Grant, 1982, p. 109). This meant that faith was "not a matter of will, or of choice or of merit" (Grant, 1982, p. 109). Faith defined as an experience of illumination is clearly not a blind leap in the dark.

Conclusion. George Grant's vision of education was based on a Platonic ontology and epistemology. It asserted the existence of universals outside of the mind that could

be known -- albeit not easily -- through an educative process that maintained the interdependence of knowing and loving. One can only know that which one loves and vice versa. To be able "to see things as they are" was the goal for this eduction. The fact that few people, if any, reached this goal was not a good reason to abandon it. It was the striving after this goal that produced excellence in the soul or the mind even though one's vision may never be totally cleared of all personal and social biases, prejudices and illusions. "Now we see but a poor reflection as in a mirror; then we shall see face to face" (I Corinthians 13:12 NIV).

Technology as a Threat to Grant's Vision of Education

As is now obvious, technology conceived as a co-penetration of knowing and making leaves love outside of its core. The assertion that was made at the beginning of the development of modern technological science was that ultimate goodness -- belief in which made something lovable -- could not be known through a systematic study of the visible world. At first this was simply a setting of proper boundaries. The new natural sciences were not concerned with the question of ultimate purpose -- this was considered the domain of theology. Yet as the sciences progressed in the years that followed, the power of their discoveries based on the laws of necessity and chance destroyed much

confidence that what one ought to do could be known from what is. This led to the famous fact/value split as unquestioned dogma.

This did not mean that love is absent in the activity of scientists. Certainly scientists love what they are doing and are led by a desire to know. But at the core of technological science is a striving to know objectively. As noted in the example concerning sexual love, how can you love something when you know it as object? Grant defined scientific research as "the summonsing [sic] of something before us and the putting of questions to it, so that it is forced to give its reasons for being the way it is as an object" (Grant, 1986, p. 86). Can you really know something when you approach it as object? Can you love something - consent to it as other -- when you approach it as a potential resource -- something at your disposal? The answer to that question is clearer when that something is a human being.

When environmentalists are warning us that thousands of species of life are being destroyed in the rainforest and when volunteer gardeners in Canada are helping the Department of Agriculture grow various grains that are no longer in commercial production, what type of reasoning is used to justify saving these threatened species? Is it not that we may need these <u>resources</u> in the future to combat some yet unknown disease or supplement a poor diet? Is

there a reason why something should exist for us outside of this paradigm of utility?

As for education, it is not the machines and convenient inventions that threaten the growth of knowledge and understanding, it is that co-penetration of knowing and making that is darkening our minds as we refuse to allow love to illumine our thinking at the core of technology. This is how Grant perceived the threat. But if one understands his Platonic position correctly it does not threaten the existence of those forms which he believed were ultimately real, nor did it threaten the education of those who affirmed the interdependence of knowing and loving. No, it threatened the education of those who maintained that the co-penetration of knowing and making was the unfolding of truth and what has love got to do with it?

CHAPTER FIVE: A CRITIQUE OF GEORGE GRANT IN THE LIGHT OF JOHN DEWEY

How can one properly evaluate George Grant's thinking on technology and education? A thorough, scholarly critique of Grant's concept of technology and his vision of education is beyond the scope of this chapter. Even narrowing the focus to his definition of technology would involve more than a cursory reading of the current state of the philosophy of technology. The "classic" anthology in this field, Mitcham and Mackey's Philosophy and Technology (1983), introduces twenty-four contributions, including one by George Grant. Appended to the paperback edition of this book is a select bibliography that lists over 350 books and articles devoted to exploring the meaning of technology from a philosophical perspective.

Instead of attempting such a prodigious task and risk losing the focus of this thesis -- the relationship of technology and education -- I limit my analysis of Grant's position by comparing it to the one established by one of North America's leading philosophers, John Dewey. Dewey wrote extensively on education but he has only recently been regarded as a philosopher of technology (Hickman, 1994). Dewey's concept of technology is summarized and compared to Grant's definition. The main source is Larry Hickman's (1990) scholarship on Dewey's understanding of technology. Finally, I use what is considered Dewey's most concise

statement on education, Experience and Education (1938), as a way of evaluating Grant's educational vision and the interaction between technology and education.

John Dewey's Pragmatic Technology by Larry Hickman (1990) is a well-documented book of approximately 200 pages that set out to justify the claim that Dewey was thinking about technology well before other celebrated philosophers of the twentieth century, such as Martin Heidegger. I found this claim rather amusing even before I started reading the book. The reason for my scepticism was that I accepted George Grant's put-down of North American philosophy. Grant firmly believed that the English-speaking tradition of philosophy was much weaker than the continental European strain -- particularly the German variety. Because the English-speakers had successfully steered the technological dynamo and used it to maintain international political dominance, first in Britain and later in the U.S., there was no need for sustained, philosophical reflection. North American pragmatic philosophy, in Grant's view, was not really philosophy, but a flattering rationalization of technology as progress. Convinced of the success of their liberal political traditions and scientific accomplishments, North Americans were not impelled to seriously reflect on the dynamo within which they moved and enjoyed life. (Dewey also saw reflective thinking arising in response to an experience of disruption.) So, Grant judged the tradition

of philosophy in the English-speaking world in general and the North American pragmatic branch in particular as weak. He had read no one in that tradition who could match Heidegger's brilliance in thinking about technology.

Perhaps the main reason Dewey is not widely recognized as a philosopher of technology is that he did not devote one book or article to the subject. Is Hickman's book a clever re-construction of John Dewey's thought to make him appear to be a "heavyweight contender" in the current debate on the meaning of technology?

Hickman may be right about Dewey for two reasons: One, Dewey himself wondered late in his life whether he should have systematically used the term "technology" instead of "instrumentalism" to denote his theory of inquiry (Hickman, 1990, p. 58). Second, Dewey's concept of technology was very similar to the one that Grant eventually formulated in the 1970s.

John Dewey's Concept of Technology

Unlike Grant, John Dewey did not develop one single definition of technology (Hickman, 1990, p. 44). Nevertheless, Hickman managed to piece together a Deweyan conception which is strikingly similar to Grant's idea that technology is a co-penetration of knowing (science) and making (art). Dewey "sought to demonstrate that the methods and means by which technological inquiry takes place <u>are</u> the

methods and means by which all knowing, in its 'honorific' sense, is generated" (Hickman, 1990, p. 4).

Dewey's conception of technology ("instrumentalism") was founded, like his ideas in education, on his theory of experience. For Dewey, all experience could be roughly divided into two phases -- the "stable" and the "motile." In the stable phase "union with an environing situation is enjoyed" (Hickman, 1990, p. 60). Whether one is enjoying the warm company of friends, the cool freshness of a spring morning, or the brilliant colours of a Van Gogh landscape, the experience is direct and one in which reflective thinking in the Deweyan sense is not required or even desired.

This stable phase of experience can be further sub-divided into two types, yet, this subdivision begins to reveal the need for technological inquiry between them. The first type of stable experience is that of "the old repetition of ceremony, tradition, institution, and the habitual"(Hickman, 1990, p. 60). This is the enjoyment of the comfortable routines that give a regulating structure to our daily lives. In the Deweyan analysis, there is nothing wrong with this except that it can lead to a dull monotony where what is formerly enjoyed becomes boring. The second type of stable experience is that of the "novelty of freshly solved problems, newly pregnant situations and enjoyed recent successes" (Hickman, 1990, p. 60).

In between these two types of stable experiences is the motile phase "in which loss of integration importunes and recovery of harmony and balance is actively sought" (Hickman, 1990, p. 60). In this phase, thinking or intelligence is employed to find a way to recover harmony with the environment. The occasion of disharmony or "cognitive dissonance" can be caused by some external or internal disruption of habitual activity or an experienced tedium of these same habits -- being in a "rut" -- that can act as a stimulus for entering the motile phase.

Deweyan inquiry is a process by which an individual or a group uses intelligent activity to alter elements in the environing situation according to "ends-in-view" that are related to recovering a stable phase of experience. Dewey's theory of experience was founded on Darwinian evolutionary biology (i.e., humans are organisms that seek to survive and grow by adapting themselves to their environments). Further, humans have gained their place at the apex of evolution because they have been able to use inquiry to go beyond adaptation of themselves to modification of their environments to suit their needs. We are "bridges," as Nietzsche wrote, from what we were to what we will become.[1]

Inquiry, then, is the means of effective control of an environment that is not what we wish it to be. This, according to Dewey, is technology: It is an active

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[1] See discussion of Time as History in chapter three.

productive inquiry that is relative to an individual in a concrete situation (Hickman, 1990, p. 23).

I will elaborate on a scenario sketched by Hickman (1990, pp. 21-24) that illustrated how inquiry is related to the way a situation is experienced: the repair of a light switch. This domestic fix-it is active productive inquiry if it is successfully accomplished by a homeowner with relatively little prior knowledge of electrical circuits. This novice electrician is in the motile phase of experience, trying out different tools and approaches to the problem until it is resolved. Unless he or she happens by chance to come upon the solution immediately, the novice may experience tension, anxiety and frustration as different attempts to repair the switch or discover the source of the problem fail. Unless the individual employs intelligence patiently to systematically try out different avenues for repair, such as consulting a popular manual of home maintenance, active productive inquiry is not taking place.

The defining characteristic of Deweyan inquiry is intelligent control exercised by the individual, over a broad range of activities directed at the problem. For instance, the individual: a) remembers or records different attempts at solving the problem (control of past actions); b) manipulates different elements of the environment to test out different ideas (experimentation); c) reflects on the situation to produce and construct different ideas and

hypotheses; d) exhibits self-control (does not give in to the temptation to quit) and manages feelings of frustration that may hinder the process of inquiry.

For an experienced electrician, on the other hand, the repair of a light switch is not part of the motile phase: It is not active productive inquiry. For this tradesperson it is a routine operation, part of the habits acquired and at rest in the stable phase of experience. So, what for one person is a problem that requires the investment of energy directed towards productive inquiry, is for another simply a routine matter. This is how inquiry is relative to an individual in a concrete situation, how it is related to the way a situation is experienced.

Why did Dewey, according to Hickman, equate active productive inquiry with technology? For Dewey, technology was part of a continuum going all the way back to the Greek idea of techne -- the productive arts. What the ancient Greek artisan was doing in his trade was essentially no different from what a modern experimental scientist or a successful modern artist is doing today. They were or are all involved in productive inquiry. In Hickman's analysis, productive inquiry in Dewey's thought could legitimately be called technology because all the elements in the experienced situation - both tangible, external ones and internal, "mental" thoughts - can function as tools for the individual in solving a problem. Anything available can be

fashioned by the individual into a tool - wood and metal for a hammer, colours in a painting, procedures for a research method, or ideas for a theoretical construct.

A tool for Dewey was always defined according to its function - what it did in inquiry - not according to its structure, what it is. An object was never a tool in and of itself until it was constructed and used in a particular situation for a particular "end-in-view."

Because of Dewey's all-inclusive definition of tools, knowing itself was understood as a "technological artifact" (Hickman, 1990, pp. 17-59).

> Meanings are for Dewey the artifacts of inquiry at one or more of its levels of complexity and precision, and whether they are at rest in experience that is aesthetic or whether they are undergoing active generative transformation in productive inquiry, meanings constitute what is important in human experience. (Hickman, 1990, p. 30)

Theories, ideas and hypotheses are tools produced and constructed by humans to gain leverage or control over a perceived problematic situation. Knowledge is not discovered; it is made.

> Logical entities are tools that arise out of the techniques of control. The inquiry that scientists and logicians undertake is a tool-using activity and, therefore, even in its most abstract phases, a form of

> practical productive skill (Hickman, 1990, p. 47). For Dewey, the termination of the process of inquiry, its coming to rest as knowledge, is the securing of control. It is for this reason that we may term knowing a technological triumph. (Hickman, 1990, p. 51)

Technology: Comparing Dewey's and Grant's Concepts.

It seems clear that Dewey's active productive inquiry can almost be equated with Grant's co-penetration of knowing and making. Agreement on the broad contours of the definition of modern technology is substantial. First, we will examine the major areas of agreement. Then we will evaluate their differences which seem minor, but only on the surface.

Similarities. Dewey agrees with Grant in some important issues in understanding technology. First of all, technology embraces both the sciences and the arts. Technology is not applied science in its usual sense: Modern science is a branch of technology rather than vice-versa (Hickman, 1990, p. 46).

Secondly, science owes more to art than art does to science (Hickman, 1990, p. 75). Grant expressed it as knowing is "folded towards" making.

Third, both Grant and Dewey agree that ancient Greek science was not technological. For the ancients, contemplation was the activity that yielded knowledge. For

the moderns, experimentation produces knowledge.

Fourth, I do not think Grant would have much difficulty accepting Dewey's explication of technology as active productive inquiry. I think he would see the Deweyan language as another way of saying that knowing is a type of making and that for us moderns we can only know something through the activity of production. But then the debate on some "minor" issues would begin.

Nevertheless, Grant's definition of technology stands up very well when compared with Dewey's conception. In fact, Grant and Dewey have arrived at this relatively similar understanding from very different theoretical perspectives which, I believe, strengthens and confirms each of their analyses of the meaning of technology. For me, the Grantian formulation is more concise and elegant: Technology is the co-penetration of knowing and making.

Differences. I purposely left out the subordinate clause in Grant's definition -- "in which both activities are changed by their co-penetration" (1986a, p. 13) -- because it is one of the details over which Grant and Dewey would disagree. To state that the activities of knowing and making have changed since ancient times is to imply two notions that Dewey did not accept: one, that modern production is essentially a different activity from ancient craft; and two, that ancient science can be accorded any status as knowledge.

Dewey would argue that modern technology had evolved into a sophisticated version of its ancient predecessor, techne. Hickman recognized that Dewey disagreed with Heidegger who - and Grant accepted this - maintained that modern technology was something new (Heidegger, 1977, p. 14; Grant, 1986a, pp. 12-13):

> For Dewey, however, in contradistinction to Heidegger, there is no radical break between the productive skills that predated the rise of modern science and those that precipitated and attended it .... For Dewey, productive skills that are prescientific and those that are scientific exist along a continuum of ever more complex and fruitful articulation of instrumentation in the broad sense of that term. (Hickman, 1990, p. 61)

Grant would call Dewey's historical understanding of the development of technology

> obscuring because it hides the fact that something new has arisen not from a scientific study of the arts which leaves them systematized but essentially unchanged, but rather by the penetration of the arts by discoveries of science which changes those arts in their very essence. (Grant, 1975, p. 63)

How did Grant understand the activity of techne that the ancient Greek artisans practised? How did he conceive of art that had not been penetrated by science? Again, in my reading of Grant, I find no clear answers to these

questions. It seems that the ancient artist and craftsman was guided by a telos, an end that was much more final than Dewey's provisional "end-in view." For instance, a carpenter works from a set design (analogous to a telos) and he/she sets about bringing forth (pro-ducing) and gathering together (con-structing) so that what comes into existence is in accordance with the original design. Once it meets these specifications, it is complete. In the same way, learning a trade or craft was a matter of imitation. The "development" of an art beyond this imitation of the master of a craft was a foreign idea in a pre-modern culture where the introduction of an innovation was a comparatively rare occurrence.

What Dewey seemed to skip over here is that both Greek artisans and scientists inhabited a society where telos[2] was the guiding principle for action. Telos meant purpose or end and it provided a limit to what could (or should) be produced. Modern technology or Deweyan productive inquiry does not contain this idea of limit that we sometimes forget was so powerfully present in the everyday life of pre-modern societies. To say that the ancient craftsperson engaged in active productive inquiry with all its resonances of experimentation is to be insensitive to the world-and-life view of the ancients, - part of that traditional

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[2] There were significant minorities, such as the Epicureans, who did not accept telos.

"superstitious" past that Dewey consistently attacked - and to ignore the power that this world view had on the thinking and activity of ancient production.

Both Dewey and Grant would maintain that ancient science and art were understood by those who practised them as separate activities. However, Dewey was not willing to concede that the highest ancient scientific activity -- contemplation - was a genuine type of knowing. Active productive inquiry was being practised by the artisans only. Further, the so-called "scientists," Plato and Aristotle, had "plundered" the activity of the craftsperson "for models from which to build intellectualist cosmologies and social theories" (Hickman, 1990, p. 95). For Dewey, contemplation of the eternal Forms was a stalling of inquiry. Ancient science was not real science because it was focused on what is and never changes. For Dewey and most moderns, this was not reality as it is experienced where change is the only constant.

Is contemplation an authentic way of knowing? Is it essentially different from active productive inquiry? The first two definitions in Webster's Seventh New Collegiate Dictionary (1967) certainly put it outside of the domain of modern empirical science: "concentration on spiritual things as a form of private devotion" or "a state of mystical awareness of God's being". The word, temple, has the same origin. The third and fourth definitions, however, provide

a less religious formulation: "an act of considering with attention" and "the act of regarding steadily".

I believe contemplation is an authentic way of knowing. In Grade Twelve mathematics, when first introduced to the parabolic curve, I was not interested for a moment how to use this information to solve a problem in differential calculus. I was more intrigued by what this concept meant. Here was this curve that got closer and closer to a particular line defined as its limit but never reached it. I was astounded - but our math teacher never spent time marvelling at this with our class. It was another math concept to be used and mastered in problem solving. This metaphor of the parabolic curve makes clearer to me what Grant meant when he said that the idea of limit is the idea of God. In the same way, when students are introduced to the Pythagorean theorem how many are made aware of the context of its "discoverer," Pythagoras, the ancient Greek mathematician who founded a religious cult that saw mathematics as a gateway to contemplating the eternal?

Grant saw philosophy as a contemplative activity that remains, despite the protests of people like Dewey, the highest form of knowing. Criticising it out of existence, as Dewey had attempted, was for Grant harmful, because it was denying an activity that was fundamentally human. He viewed it as another way of sustaining reflection on the technological enterprise from outside of itself, partially

in the hope of avoiding an ecological disaster. But even this way of seeing contemplation as a tool for solving ecological problems, obscures its meaning. We have no modern language to adequately portray what this ancient activity meant, for if contemplation is not defined as useful for some purpose, then it ceases to be a "meaningful" activity in the modern sense.

Finally, it needs to be made clear that regardless of how much Grant and Dewey might have agreed on the broad contours of a definition of technology, Dewey was much more hopeful of this modern enterprise. Dewey had faith in the possibilities of inquiry. Problems blamed on "technology" - such as perhaps the threat of nuclear annihilation, the thinning of the ozone layer, or general pollution - were, in his view, the result of human failings or ignorance (Hickman, 1990, pp. 156-157; p. 184). Technology <u>per se</u> (i.e., active productive inquiry which oscilates in a zone of intelligent experimentation), is the best we can do. We have no alternative, Dewey said. Passive acquiescence to a pre-determined fate is unacceptable - this is not what got us to the top of the evolutionary spiral. We throw ourselves into active productive inquiry to meet the ecological challenges head on <u>or</u> die trying for "there is no god to save us" (Hickman, 1990, p. 203).

Grant was often accused of being a reactionary pessimist who was "too much of a fatalist to propose solid solutions" (Gunter, 1994, p. 45). Certainly, in my reading of Grant, I have found it hard to escape feeling powerless in the face of the technological juggernaut. In the same vein, Baum (1989) criticized Grant for offering a definition of technology that is totalizing. I think this accusation would be better directed at Dewey than Grant because Dewey sees no alternative for acting outside of our best efforts at productive inquiry. With Grant one gets the sense that there may be another way that exists outside of the paradigm of technology. What that was Grant could only hint at, but one could not accuse him of giving up:

> In such a situation of uncertainty, it would be lacking in courage to turn one's face to the wall, even if one can find no fulfilment in working for or celebrating the dynamo. Equally it would be immoderate and uncourageous and perhaps unwise to live in the midst of the present drive, merely working in it and celebrating it, and not also listening or watching or simply waiting for intimations of deprival which might lead us to see the beautiful as the image, in the world, of the good. (Grant, 1969a, p. 143)

John Dewey's Theory of Education

Like his concept of technology, Dewey's theory of education was based on a theory of experience. A short hand way of expressing this is that education and technology for Dewey were all of one piece: (i.e., education of the young meant structuring appropriate learning experiences in which they would be engaged in active productive inquiry).

The quality of human experience was the standard by which to judge any social arrangement, including the school. Therefore, educators needed "a coherent theory of experience, affording positive direction to selection and organization of appropriate methods and materials" (Dewey, 1938, p. 30).

Dewey highlighted two criteria of experience that educators should keep in mind when planning learning activities. The first was the criteria of continuity, which means that "every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after" (Dewey, 1938, p. 35). Learning tasks and experiences have to fit in with what the learners had previously experienced. For example, teachers in a depressed inner city slum need to keep in mind the home and play environment of their young charges when they plan classroom activities if they hope to "reach" them. But once they have connected with the youngsters, the teachers must further recognize that the quality of the learning

experience must be such that it "arouses curiosity, strengthens initiative and sets up desires and purposes" (Dewey, 1938, p. 38) so that possibilities of opening up future, richer experiences for the students are established.

The second criteria of experience that Dewey insisted on for education was interaction. Every experienced situation was an interaction of objective and internal conditions, "a transaction taking place between an individual and what, at the time, constitutes his environment" (Dewey, 1938, p. 43). The error of traditional education, Dewey asserted, was that it only emphasized "the external conditions that enter into the control of the experiences but that it paid so little attention to the internal factors which also decide what kind of experience is had" (Dewey, 1938, p. 42).

Keeping in mind these two criteria of experience -- continuity and interaction -- an educator always has the responsibility of assessing each new situation and making necessary modifications to planning (e.g., just because it worked in the past does not mean it will work in the present situation).

How does an education based on a theory of experience better prepare a person for the future? Dewey's answer is powerfully consistent:

> We always live at the time we live and not at some other time, and only by extracting at each present time

> the full meaning of each present experience are we prepared for doing the same thing in the future. This is the only preparation which in the long run amounts to anything[3]. (Dewey, 1938, p. 49)

Since we live in an environment where the pace of change is accelerating, it makes no sense to instruct students with a body of knowledge which would become more or less irrelevant. For Dewey, knowledge was not a static thing anyway, so transmitting it was engaging in an "unreal" activity. Knowing is always a verb for Dewey; one did not grasp or discover knowledge, one constructed it. So, unless students were encouraged to make their own knowledge on the basis of their own experiences, they really were not involved in education. Education led towards active productive inquiry and that inquiry itself was, by definition, an educative experience.

Dewey eschewed dualisms of any sort. The conflict between "traditional" and "progressive" education was one

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[3] It is surprising to see how similar is Oman's view of experience and education as cited by Grant: "It is never more than pretence to start anywhere else than in the whole actual present, or with anything less than the conclusion of our experience. All we can do is use the fullest capacity of mind which has been developed in us by the highest training of its power with all its knowledge and all its insight: and from the historical position in which we find ourselves, not to seek to empty ourselves of our convictions, but to be ready to revise them .... The only true empirical inquiry works with all experience" (Grant, 1950, p. 43). However, what Oman clearly implied is that this "highest training" was classical education. Dewey was more ambiguous about the place of this type of training in his theory.

that went against his intellectual grain. His heart was with the progressives, but he was concerned about how some reformers were abrogating the authority and responsibility of the teacher -- something which had been too oppressive in the older system. The teacher still had a leadership role in the "new" school, based, again, on his or her greater maturity of experience which put the adult educator "in a position to evaluate each experience of the young in a way in which the one having the less mature experience cannot do" (Dewey, 1938, p. 38). Hence, Dewey's theory of education was not primarily child-centred.

Traditional educators who are concerned about transmitting a cultural inheritance might be surprised to discover that Dewey certainly did not deny the importance of learning about the past. However, again, consistent with his theory of experience, the question for educators was: "How shall the young become acquainted with the past in such a way that the acquaintance is a potent agent in appreciation of the living present?" (Dewey, 1938, p. 23).

A Critique of George Grant's Vision of Education in the Light of John Dewey's Theory of Education

Comparing a vision with a theory is like comparing apples and oranges. A vision lacks the systematic, logically coherent structure found in a good theory. George Grant's ideas of education have not been fleshed out enough

to qualify as anything approaching a theory. It is clear that Dewey's views on education were developed and applied both in his own experience (1896-1904) with the "laboratory" school at the University of Chicago and in the light of the experience of various "progressive" schools that he observed throughout the course of his life. Let us face it: an educator looking for direction in how to fashion appropriate learning experiences will get clearer guidelines from Dewey than from Grant. Despite Dewey's disappointment with the way many educational reformers had misapplied his ideas for improving schools (Dworkin, 1959, p. 10), a pragmatist has a practical appeal.

If my understanding of Hickman is correct, and if his exegesis of Dewey's writing is reliable, then it would not be reductionistic to maintain that Dewey viewed education and technology as virtually identical and that he felt that this is as it should be. In contrast, Grant saw education as something beyond technology. Grant would most likely declare that active productive inquiry might be necessary (although he regarded with suspicion the idea that knowledge was constructed) but it was not sufficient in achieving excellence in education. The question remains: How can Grant's vision of education -- the interdependence of knowing and loving -- be fruitfully criticized in the light of Dewey's position on education as technology?

Critique of Plato. As was explained in chapter four, George Grant's vision of education was based on a Platonic view of the nature of reality. Since it is impossible to consider a direct Deweyan critique of Grant, John Dewey's assessment of Plato's ideas might be helpful.

John Dewey did not accept Plato's theory of the forms. Dewey could not see how one could get outside of experience and Plato's assertion that the ultimate realities were outside "the contingencies of even the most refined experience" (Hickman, 1990, p. 93) seemed nonsense to him. Dewey could allow Plato his flights of theoretical fancy - this was sometimes part of inquiry - but Plato's insistence that this movement away from experience into theory was a one-way street went against the maxim of productive inquiry: You had to come back "down-to-earth" and check your ideas out in the messy world of immediate experience.

It would be tempting to simply state Grant's and Dewey's difference on Plato and admit no rational reconciliation of their foundational positions. However, the interpretation of a particular writing can often be the source of understanding the difference better. I have no doubt that Grant would respond strongly to the following contention that Hickman attributes to Dewey:

> Plato's eagerness to apotheosize aesthetic ends had the consequence of deprecating and demeaning the free play of inquiry into materials and conditions that is

> necessary to a full spectrum of human interaction with environing situations .... The Republic richly, and sadly, documents the results for social thought in general, even more specifically for democracy, of this turn against productive experience. It is there that Plato arrogates all meaningful technical skills to the totalitarian social engineer. (Hickman, 1990, p. 94)

Grant's response would probably be: To imply that the central message of The Republic is that it describes a totalitarian state is to miss the whole point of that dialogue. The central question that Socrates and his friends are concerned with is: What is justice? It is clear in reading The Republic that the purpose of the whole exercise of constructing the imaginary city-state was to write in "big letters" what justice looked like in a community in order to better see how it could exist in an individual (Cornford, 1974, p. 55).

Is there not, at least, an implied yearning for a certain type of state in The Republic? It can be argued that Plato's "ideal" state was an aristocratic one in its most literal sense: the rule by those best suited to govern. Aristocracy understood in this "pure" sense, was not to be equated with its historical debasement as rule by an inherited nobility. To describe Plato's imaginary polis as totalitarian is at best highly problematic and, at worst, an anachronistic blunder: The ancient equivalent to the modern

totalitarian state was a tyranny - the worst state in Plato's typology of political regimes (Cornford, 1974, pp. 287-301).

To return to the main point: When fabricating a mental construct such as Plato's Republic in order to represent a magnification of an individual soul, certain types of political arrangements such as democracy do not work in making an appropriate analogy. For instance, if an individual were to operate on the democratic principle, then the brain would have to defer to all its bodily members (legs, arms, stomach, liver, etc.) to see if it should remain in power to command and co-ordinate the body as a whole. Or, to use the Platonic concept of soul, a person whose reasoning part had lost control and in whom certain violent emotions or strong desires demanded equal say with reason in governing the soul as a whole, -- such a person might be considered insane. When Dewey calls democratic arrangements the most humane, he obviously does not imply that this principle should govern one's internal life as can clearly be seen in the following:

> The ideal aim of education is creation of power of self-control .... Impulses and desires that are not ordered by intelligence are under the control of accidental circumstances .... A person whose conduct is controlled in this way has at most only the illusion of freedom. Actually he [sic] is directed by forces over

which he has no command. (Dewey, 1938, p. 64)

Therefore, for the analogy to work, in which a political community accurately mirrors an individual as a functioning unit, something like an aristocratic or corporate model must be used where each organ of a society is assigned the task for which it is best suited. Once the characters in Plato's dialogue are able to see the principle of justice operating on a macro level in the imaginary state, they quickly comprehend how it is embodied in an individual (Cornford, 1974, pp. 130-143).

Early in his academic career, Grant (1954a) published a defense of Plato that was particularly directed at those who taught that Plato advocated a totalitarian state:

> If Plato's primary interest was politics, why was it that in the classical world men [sic] with such utterly different approaches to politics as Julian, Plotinus, Origen and Augustine could all accept the Platonic philosophy as true? This was possible surely because they found in Plato not chiefly a political programme, but answers to questions which they considered took precedence over political philosophy. (Grant, 1954a, p. 187)

Near the end of his career, Grant concluded that it is extremely difficult for us moderns to understand the Republic "because most German and English scholars have, for the last two centuries, read it through Kantian eyes (a

great darkening) and Catholics through Aristotelian eyes (better, but still a darkening) "(Grant, 1982, p. 108).[4]

Knowing and loving. Grant never advocated setting up a school system based on the thought experiment of the Republic. In fact, my experience in Grant's classes leads me to wonder whether he was more of a Deweyan-style educator than he might have cared to admit. Whatever differences exist between Dewey and Grant on a theoretical level, Grant ran his classroom discussion in a way that showed deep respect for the students combined with the challenge to think clearly. He allowed students' questions to "sidetrack" the issue he chose to present and invited those who were interested to continue the discussion in his office after class. Even though he had acquired a national reputation as a leading thinker, there was no trace of arrogance in his dealings with undergraduate or graduate students.

Like some 1960s style radicals, Grant did not treat educational administration with the same respect. For example, I approached him after the first class to sign a permission form to audit his course for which, of course, I

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[4] Which begs the question: Is it correct to read it only through Grantian eyes? My understanding and appreciation of Plato pre-dates any conscious awareness of Grant's acceptance of this ancient thinker. I was taught how to read The Republic through the eyes of Professor Charles Taylor while doing graduate work in political science at McGill University in 1975-76. Three years later, hearing Grant speak in class about Plato's allegory of the cave floored me. I consider that a profound experience of "triangulation."

had to pay a fee. After looking at the form for a few seconds, he handed it back to me unsigned, scowled something about "administration" and invited me to continue coming free of charge. Actions such as these only further endeared him to me.

Let us assume that if John Dewey and George Grant had a conversation about how teachers and students should relate to one another and to the curriculum they could find common ground in something that Novak (1994) has called the "pragmatic loving stance" (p. 18). Although Dewey rarely used the word, "love," it is implied in his educational writings if one equates it with respect: respect for the quality of experience -- that of the students, of oneself as educator and of the experiences shared together.

Grant might object to the lack of intellectual rigour perceived by many as one of the weak areas in educational reform. Dewey might respond with, yes, it is a problem but that is to be expected sometimes when change is initiated. He might further reply with the hope that as reformers recognize this inadequacy and address it properly they will do so with an enriched understanding of how experiences and education are deeply connected.

Grant would probably raise the issue about how one can properly present the questions that were raised by people in the past concerning the meaning of life if not enough attention is paid to teaching history in the schools. Dewey

might reply that teaching history in the traditional manner was so cut off with living experiences of students that it made no sense to them: It seemed irrelevant and was quickly forgotten after a test. Dewey would repeat the challenge quoted earlier in this chapter, that acquainting students with the past be such that it be "a potent agent in appreciation of the living present."

To which Grant might retort, "Do you mean that the past has nothing to teach us except that 'we've come a long way, baby'?" Dewey's response would depend on what he meant by "appreciation of the living present" beyond our gratitude for things such as antibiotics and indoor plumbing, things our forebears had to live without. Perhaps, as well, Dewey would concede Grant's point that we moderns have been deprived of some "goods" along the way (e.g., being able to drink pure water from any lake or river). But, then again, Dewey never claimed that "progress" was inevitable. Existence was "very precarious" and human life could terminate as a result of natural events, human greed, laziness or error (Hickman, 1990, pp. 156, 157, 203).

Grant's assertion that there are certain questions raised by people in the past that "belong to human beings as long as there are human beings" (Grant, 1986a, p. 102) would be quickly followed by Dewey's assurance: Then these questions will surface quite "naturally" but more meaningfully in the lived experience of the present.

Students might be motivated to research the past once their curiosity is stimulated or they feel pressured by problems actually experienced in the present.

"But do you know what is happening to research in the humanities at the university level these days? Traditional scholarship which once helped us to wait 'upon the past so that we might find in it truths which might help us to think and live in the present' (Grant, 1986a, p. 99), is being usurped by technology -- what you call active productive inquiry -- which is making a museum culture[5] of the past. These new research methods, borrowed from the natural sciences, represent the past from a position of command from which 'you can learn <u>about</u> the past; you cannot learn <u>from</u> the past' (Grant, 1986a, p. 100, underlining mine)," Grant would protest with some emotion, recalling why he left McMaster.

The debate would, no doubt, deepen with Dewey challenging Grant on the meaning of "truths" and asking him what he meant by the interdependence of loving and knowing beyond the "pragmatic loving stance" that one takes with oneself and with students inside an actual lived experience. Grant would find this a very difficult question to answer.

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[5] "I use the metaphor 'museum culture' because museums are places where we observe past life as object. This present situation is clear in the strange fact that at one and the same time never has so much money been put into the organized study of the past and never has the past had less meaning in our lives"(Grant, 1986a, p. 98).

Both would agree on the error of the fact/value split and the myth of objectivity in all scientific research, yet Grant would state his position that in the modern account of knowing, love has been pushed out of this core activity because love assumes the beauty of otherness (Grant, 1986, p. 39).

> The interdependence of love and knowledge is most clearly manifest when we try to understand what it is to love justice -- (and it must be remembered that the love of justice is what all human beings are primarily called to). We can only grow in our knowledge of justice in so far as we love what we already know of it and any new knowledge of justice then opens up the possibility of further love which in turn makes possible fuller knowledge .... In our daily attempts to be just the central fact about human love is made plain. Love is only love insofar as it has passed through the flesh by means of actions, movements, attitudes which correspond to it. If this has not happened, it is not love, but a fantasy of the imagination. (Grant, 1982, p. 108)

Love that "passes through the flesh" seems to be Grant's way of articulating pragmatic love: It declares its existence through actions and there is no arena in life too mundane for it to enter. Grant cited the example of Charles Darwin who exhibited a rich, loving recognition of every

flower, bird or insect that he encountered on his country walks. "However, Darwins's most general scientific truths concerning animals ... are true whether or not animals are greeted or not greeted with loving recognition" (Grant, 1982, p. 113). Grant used irony here to question those "general scientific truths." In other words, if it is true that all animals - humans included - can be explained as matter-in-motion (sophisticated systems of complex chemical reactions), then "love" itself is a chemical reaction. What is love, then, beyond a hormonely-based sex drive for the self-preservation of the species?[6]

The opposite to love for Grant was not hate but indifference. At the core of the technological enterprise, is a supreme indifference to the existence of anything as it exists in its own right. Dewey expressed this well when he stated that nature "is material to act upon so as to transform it into new objects which better answer our needs" (Hickman, 1990, p. 45). Whatever our reasons may be for "transforming" nature into objects which better answer our needs, no matter how deeply felt or nobly expressed, "it is

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[6] Grant's comment on the contemporary dispute between evolutionists and creationists is worth noting. Although he recognizes that the fundamentalist position is a "non-starter," Grant (1984) asks: "Are not the fundamentalists after something of great importance which the more complacent scientists just miss? If Darwin is correct and all that exists - including human beings - can be explained in terms of 'historical' necessity and chance, are there not very terrible consequences for the possibility of any humane politics" (p. 66)?

clear that the love involved in the modern project here is not given to or received from the objects of the research, but to other beings who will be the recipients of the goods which result" (Grant, 1982, p. 112). What terrified Grant about the future was what would happen to the pragmatic loving stance in education as the technological paradigm of knowledge had already moved beyond non-human nature as the object of study, to human nature itself. I am convinced that Dewey would not be able to offer the kind of reassurance that would alleviate his fears.

CHAPTER SIX: CONCLUSIONS AND IMPLICATIONS

This thesis has analyzed the question, "Is technology a threat to education?" from the perspective of George Grant. First, the life and thought of George Grant was summarized. Second, Grant's definition of technology was abstracted and explicated. Third, Grant's vision of education was described. Fourth, Grant's position was critiqued in the context of the views of John Dewey. In this final chapter, summary conclusions will be drawn from the above analysis and the implications of Grant's views will be assessed for educational research and practice.

Summary Conclusions

In the preceding chapter the analysis of John Dewey's concept of technology confirmed the validity of George Grant's definition. Technology conceived as the co-penetration of knowing and making can bear a reformulation as Dewey's active productive inquiry without modifying the essential meaning. The fact that Dewey and Grant disagree on how the ancients understood knowing and making -- science and art -- does not diminish their substantial agreement on the nature of modern technology.

Grant's definition provides a foundational mooring and philosophical depth to those who are confused in debates about the introduction of new technologies. For example, using the term technology to describe machines or inventions

often focuses fears on the machines themselves. From Grant's analysis, it is clear that machines are not technology but artifacts of technology. As such, they have no source of power outside of human design, agency, and use.

Technology as the co-penetration of knowing and making must exist to some degree in a culture for technological artifacts to affect that culture. For instance, witness the failed attempts to introduce "technology" in "less developed" countries. Near the end of World War II American soldiers set up water purification systems in the Philippines, both for themselves and the local residents. Even though some Filipinos were trained in system maintenance, the project broke down and fell into disuse. From these and similar experiences in Third World countries has arisen the idea of "appropriate technology": A "less developed" society needs to be eased gradually into the technological realm by introducing simpler artifacts that can be assimilated and comprehended by the host culture.

Cuban (1986) documents how the culture of North American schools has remained largely unaffected by the introduction of such artifacts as radio, television and film. In spite of the predictions of futurologists, is there something resistant to the co-penetration of knowing and making in modern education that cancels the power of these artifacts to effect change? Will computers similarly be impotent to alter educational practice? Or will the

Internet do an "end run" around the institutional "dinosaurs" called schools and, so, free up education from the out-dated factory model?

Means (1994) argues that the appropriate use of such educational machinery must develop in conjunction with a reform of schooling if these artifacts are to move from the periphery to the core of instruction: "There is a tremendous need for teacher training that shows teachers the potential of various technologies and for technical assistance that helps teachers identify the particular technologies and applications that will serve their purposes" (Means, 1994, p. 18). Opposed to such a position are those such as Postman (1992) who encourages teachers to become "loving resistance fighters" and sees schools as the last conservative bastion in a culture that has surrendered to technology. Three questions arise from this debate: Will Means' idea of technical training reform the culture of schooling to be more receptive to the use of advanced artifacts? Should such a reform be effected? Will the Internet finally "deschool society" in Illich's (1970) sense and render the above questions irrelevant?[1]

Secondly, just as Grant's concept helps us to distinguish between technology and its artifacts, it also

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[1] The Internet may provide the opportunity to design "learning webs" (Illich, 1970, pp. 72-104) that match teachers with learners according to felt needs rather than enforcing compulsory attendance in school buildings.

points to the inadequacy of Ellul's much broader definition: technology defined beyond machinery to include all rational techniques and quantitative methods that are oriented to the goal of efficiency. For Grant, Ellul's work is a wake-up call: It reveals the power of technology through a comprehensive, sociological description of life in modernity. However, this definition is inadequate because it still suggests that the phenomenon is outside of ourselves.[2] It allows us to believe that the uncomfortable experience of earlier, cruder, mechanistic techniques can be solved through the application of more humane ones. Obvious, even silly, examples are how computers solve the administrative problem of keeping track of individuals while not appearing to treat them as numbers: cheaper personalized license plates and bulk mailings of personalized letters.

A less obvious example of this type of belief is expressed in the interior design of the McMaster University Medical Centre. Through the use of informal spacing of rooms, low lighting, colour and carpet, a patient receives the impression of a less sterile, non-institutional setting that invites a feeling of homey comfort. Yet this is a centre of medical technology where humans are objects of research in a more profound way through the study of gene structure and experimentation on fetal tissue -- and some

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[2] See discussion of Grant's critique of Ellul in chapter three.

humans (defective infants whom nobody wants) are starved to death through "benign neglect" (Grant, 1986a, p. 107). It is almost as if the architect of this medical centre designed the factory-like exterior of the building to remind us that nothing substantially has changed.

Thirdly, the conventional view that technology is the application of science hides from us, as both Grant and Dewey show, in what way this science is applied at its core. Knowing is folded towards making. Knowledge is constructed; knowing is productive activity.

Grant's analysis implies that technology is ontologically prior to both our knowing and making. For Dewey this ontological priority is the culmination of a historical development latent in the ancient world. For Grant the assumption of this prior ontology marked the beginning of modernity since it was a deliberate, self-conscious turning away from the different ontology of the ancients. Dewey defines technology from within its ontology; Grant defines it from without.

Recognizing Grant's ontological position outside of technology does not imply that he has given an adequate account for assuming this stance. His refusal to accept Nietzsche's conclusions was an act of faith that was not articulated in any systematic way. Before his death George Grant had hoped to write a proper rebuttal to those such as Heidegger, who convincingly demonstrated from historicist

assumptions that it was impossible to get outside the ontology of the modern age. Nevertheless, Grant's ironic and poetic essays (which some critics have pejoratively dubbed as rhetoric) evoke in many readers a sense that there is something outside the modern technological paradigm with which it is necessary for us to connect in order to prevent the tightening circle from extinguishing something inside us that is fundamentally human.

Although Dewey's thorough explication of active productive inquiry resonates with Grant's formulation of technology, it does not help the reader to take a critical position outside of the modern enterprise. Rather, one is thrown back into technology, de-constructing and re-constructing knowledge to make it work in practice as one searches for solutions to ecological problems generated by previous artifacts of technology. What is the direction of modern inquiry as productive power escalates and there is no assurance that future technological artifacts will not be more profoundly environmentally destructive?

Would Grant similarly question those educators who claim to be critical theorists? Grant's analysis of technology could be helpful to those who seek to establish more democratic forms of community since it offers a perspective that critiques the anti-democratic bias of a technological society. Like Grant, critical theorists are aware of how the formal, representative forms of democratic

government have been pushed to the periphery of actual political power in modern society. As Grant (1973) asserts, "elections are more and more plebiscites in which the masses are asked to choose between alternative groups of the elite within the determined administrative system" (Grant, 1973, p. 190). In addition, Grant's (1974) critique of modern liberal justice as well as his view that technology is undermining justice as traditionally understood (Grant, 1986a) needs to be read by those who are committed to establishing some form of social justice.

Critical theorists often think about how ideology plays a formative political role in education. Grant's definition of ideology is particularly insightful in this regard. "Put one way: ideologies are surrogate religions pretending they are philosophies. Put the other way: they are surrogate philosophies trying to fulfil the role of displaced reverence" (Grant, 1973, p. 195). In this quotation is the implication that ideology is the debasement of philosophy and religion.[3] Would critical theorists accept the possibility that there was a genuine type of knowing practiced by those who dealt with the questions of religion or philosophy prior to the advent of modern ideologies?

Grant's challenge is indirect: Are there ways of

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[3] We give the term "ideology" much more respect than Grant does. In Brock University's guidelines for projects and theses, one suggestion for students is "to determine the sorts of knowledge and ideological support required to work with a specific method" (Putting the Pieces Together, 1991, p. 2).

knowing not expressed within technology that do not depend on experimentation? This question is implied throughout Grant's work. Philosophy in the Mass Age (1966a) was his most hopeful attempt at phrasing the question: How can the ancient way of knowing -- contemplation -- temper modern experimentation? MacIntyre (1984) articulates a similar hope of recovering a type of Aristotelian social practice. He has influenced action researchers such as Elliot (1991, pp. 139-152) to reconsider the teachings of the ancients. Reflective practitioners Drake and Miller (1991) see MacIntyre as the modern founder of narrative research and they enthusiastically espouse contemplation as a higher level of reflective practice. Van Manen's (1990) attempt at delineating a new human science based on hermeneutic phenomenology seems similar to ancient philosophy. His careful exploration of etymology and anecdotal information with the aim of understanding the essence of parenting or teaching echoes the dialogues of Plato. For example, Van Manen's discussion of the meaning of "good" illustrates that he is very close to the ancient conception that the good of something was that for which it was fitted:

> Our conception of knowledge and rational thinking has been detached from its traditional affiliation with the conception of the "good". And yet we have to understand the "good" in order to give content to the meaning of competence when we speak of an adult as a

> "good" teacher or "good" parent. (Van Manen, 1990, p. 159)

Indeed, Plato is still considered relevant by some in education (Hobson, 1993; Weiss, 1994). Arcilla (1995) reviews Richard Rorty's vision of a non-Platonic yet very Socratic liberal education. Stephen Hawking, a modern physicist, is not a Platonist, but his proposal that the universe is governed by a law of initial conditions that shares the property of transcendence reflects the theory of the Forms. Hawking contends that:

> We can only know these laws by observing the universe which they govern, but they are separate from the universe. The laws do not depend on the universe for their existence. That is, if the universe were to cease to exist, the laws would continue. (Berryman, 1992, p. B13)

Is Hawking employing contemplation to arrive at such conclusions? Does Hawking share with Einstein a way of knowing outside of experimentation that allows the development of cosmologies that will revolutionize scientific research? Has Hawking been able to escape the ontology of technology to connect with something "eternal" without reading the ancients?

Grant was extremely pessimistic about the modern project. In his view, modernity would not allow anything outside of itself to limit or temper its imperial drive.

The cautious optimism of Philosophy in the Mass Age was replaced in his later writings with a brooding critique of everything modernity stood for. Yet, he believed the "eternal" could take care of itself. One wonders, if he were alive today, how he would perceive the phenomenon of "post-modernism." Is it a groping for those "intimations of deprival"?

Implications for Educational Research and Practice

Can technological development be simply subsumed under positivist science and quantitative methods in educational research? Grant's answer is no. Positivism and quantitative research are subsets of technology. Rejecting positivism and foregoing the quantitative methods in research will not necessarily mean that one has left the realm of technology.[4]

Is the qualitative approach with its subsets of ethnography, action research, narrative description and reflective practice epistemologically free of the way of thinking that gave rise to modern technological science? From Grant's perspective, the answer is a qualified no or a qualified yes. Inasmuch as we construct knowledge in any of the above research activities, Grant would caution that we

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[4] From Grant's perspective, the definition of research accepted by Brock's Faculty of Education is clearly within the technological paradigm because of its orientation towards "control of events" (Putting the Pieces Together, 1991, p. 10).

are still inside technology where knowing is productive activity. Where reflective practice looks to Dewey (1933) for its foundational assumptions, it needs to carefully distinguish the type of thinking that characterizes productive inquiry and types that rest on different premises. Van Manen's (1990) work can be seen as a transition from reflective practice based on technology to one open to other foundational assumptions. Elliot (1991) and Smyth (1992) demonstrate concerns that reflective practice can easily become another technique whereby teachers become more effective custodians of the young subservient to centres of power that "have become even more remote and the system of surveillance even more comprehensive" (Smyth, 1992, p. 286).

Technology as defined by George Grant can aid those who wish to untangle these epistemological issues. The term <u>action research</u> implies that experimentation (i.e., changing one's actions in a class in order to comprehend a learning situation) is the way of knowing. As such, action research is as technological as imposing a structure on a class based on the quantitative approach. The fact that the <u>ethics</u> of research is a dominant concern for reflective practitioners illustrates that our <u>actions</u> have consequences for human beings who have become objects of our research in a "naturalistic" setting. Thus Cooper (1991) defines technology as <u>action into nature</u>.

Narrative description, on the other hand, opens up possibilities that meanings are discovered, not made:

> Telling a story of the actions and speeches of another is precisely how one reveals not who has acted and spoken but the meaning of those deeds and words. Meanings, the meanings of deeds and words, are not "made" but rather are revealed or disclosed in stories. (Cooper, 1991, p. 141)

For qualitative researchers in education, Grant helps them to be more "heads up" about their work. However, we must never underestimate the power of the quantitative paradigm as we experience its tightening of our ontological circle: What we perceive as differences in quality is apparently completely explainable in quantitative terms. Computers illustrate this power convincingly. They can electronically transform all impressions and sounds through the quantitative grid of a binary code. As these artifacts increasing dominate our daily lives, they reinforce the supremacy of quantity while at the same time hiding it behind our "user-friendly" interactions with them.

Grant's vision of education has at its core a type of contemplation that rests on the assumption that knowing and loving are interdependent. One hesitates to try to elaborate here what Grant meant beyond the few passages he wrote about this. However, the closest one can come to appreciating his vision is to consider two words often used

in the place of knowing -- comprehending and understanding. Although these two terms are often employed synonymously, their etymology suggests two different types of knowing. Comprehending has a Latin origin that literally means "to seize with." "Understanding" is an Old English word that suggests that one stands under that which one seeks to know. Comprehending is a term which seems more at home in the technological account of knowledge where we know things as objects that are at our disposal. Understanding suggests a stance that allows the other to be without being seized: It is a listening to the other with careful attention so that the other may tell us, unforced, who or what it is in a language all its own (i.e., the observer allows a heterogeneity to be without a prior classification scheme to "better" comprehend it). It is the loving stance.

What are criteria that might be useful in considering contemplation as a way of knowing in a modern framework? First, there must be an openness to all that presents itself to thought without prematurely emptying oneself of strongly held convictions. In other words, each of us must recognize and accept the particular context out of which we come and in which we are rooted. For me this means that no matter how much I admire Grant, I must not allow his critique of Calvinism to force me to give up too hastily on my Dutch Reformed heritage. Rather, the contemplative stance requires that I maintain an openness to both Grant's

critique and my own heritage and that I not revise any convictions until I am convinced to do so in good conscience.

Second, the power of memory must be cultivated in order to nourish one's mind and recover some measure of control over one's thinking in an age where we are so quickly bombarded with too much information. Grant (1970) warns us that:

> our memories are killed in the flickering images of the media, and the seeming intensity of events. There is weakened in us the simplest form of that activity of recollection which Plato knew to be the chief means to wisdom. (p. vii)

Third, one must read and write carefully. For some, this might mean reading fewer books at a slower pace. As well, this means being aware of any tendency to read <u>into</u> a passage <u>or</u> classifying a thinker according to some generally accepted or personal typology that can so easily obscure the author's meaning. In this regard Grant was an unusual university instructor: He did not overwhelm his students with long lists of required books. However, he did demand a thorough, critical reading of those that were selected.

When he wrote, (and this can be seen especially in his published work since 1965) Grant was painstaking in his choice of words. He was aware of their power to shape thinking. This can be seen both in the words he avoided

using - values, subjective, objective, ideal - and in the type of etymological analysis that he employed to get at the meaning of words like technology, object and project. Reading and writing in a contemplative approach, then, is attending to the meaning and power of words.

Fourth, one needs to engage in discourse with others so that one's ideas are opened up for possible revision and one's ability to think clearly is enhanced. Active listening is the pre-requisite here. We must always check to be sure that what we thought was said corresponds to what the speaker intended to say.

Fifth, one's whole being must be engaged in the activity of contemplation. Feelings and thoughts must be allowed to intermingle without losing the rigour of a disciplined intellect.

Sixth, contemplation may allow us to recover a broader and deeper notion of reasoning that, as Grant suggested in one of his classes, combines the Greek ideas of logos (with its emphasis on logical, linear thinking) and nous (Gestalt, the whole picture). We often refer to this as left- or right-brain thinking. For Grant, modern science is logos without nous. Whereas, nous without logos is mysticism.

Ideas for Further Study

1. New studies on the history of schooling that take into account Grant's concept of technology would deepen our

understanding of the relationship between technology and education. What was it in the history of education that resisted reform? Was it education in the Grantian sense, or was it an older social arrangement that fit an earlier technological framework (i.e., the factory model of schools) but that, like every other business in the age of high tech, needs to be "restructured"?

2. Is Grant's vision of education operating in any school or university? How resistant is this type of education to technology?
3. If Grant is correct, how do we incorporate new machinery in schools? How helpful is his analysis in dealing with computers in schools? A longitudinal study could be done of a school that uses computers extensively to see whether the criteria for education in the contemplative sense is enhanced or discouraged.
4. Is feminist pedagogy more or less resistant to technology in the Grantian sense? Is it more open to the idea of the interdependence of knowing and loving?
5. Grant's claim that knowledge and loving are interdependent needs more consideration because it questions the whole modern scientific project at its core. His notion needs further elaboration and it needs to be tested in research and discourse.

Is technology a threat to education? Is the co-penetration of knowing and making a threat to the

interdependence of knowing and loving? This raises the old questions of what knowing or knowledge is. For Grant, if those types of questions arose in a class discussion, it meant that education was still alive. Technology-as-scholarship was a necessary but not sufficient condition for setting the parameters of educational discourse. Once students moved from asking, "Who said what when?" to "What do we see here and is what we see worth considering as true?", then there was a participation in a conversation that has not stopped.

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